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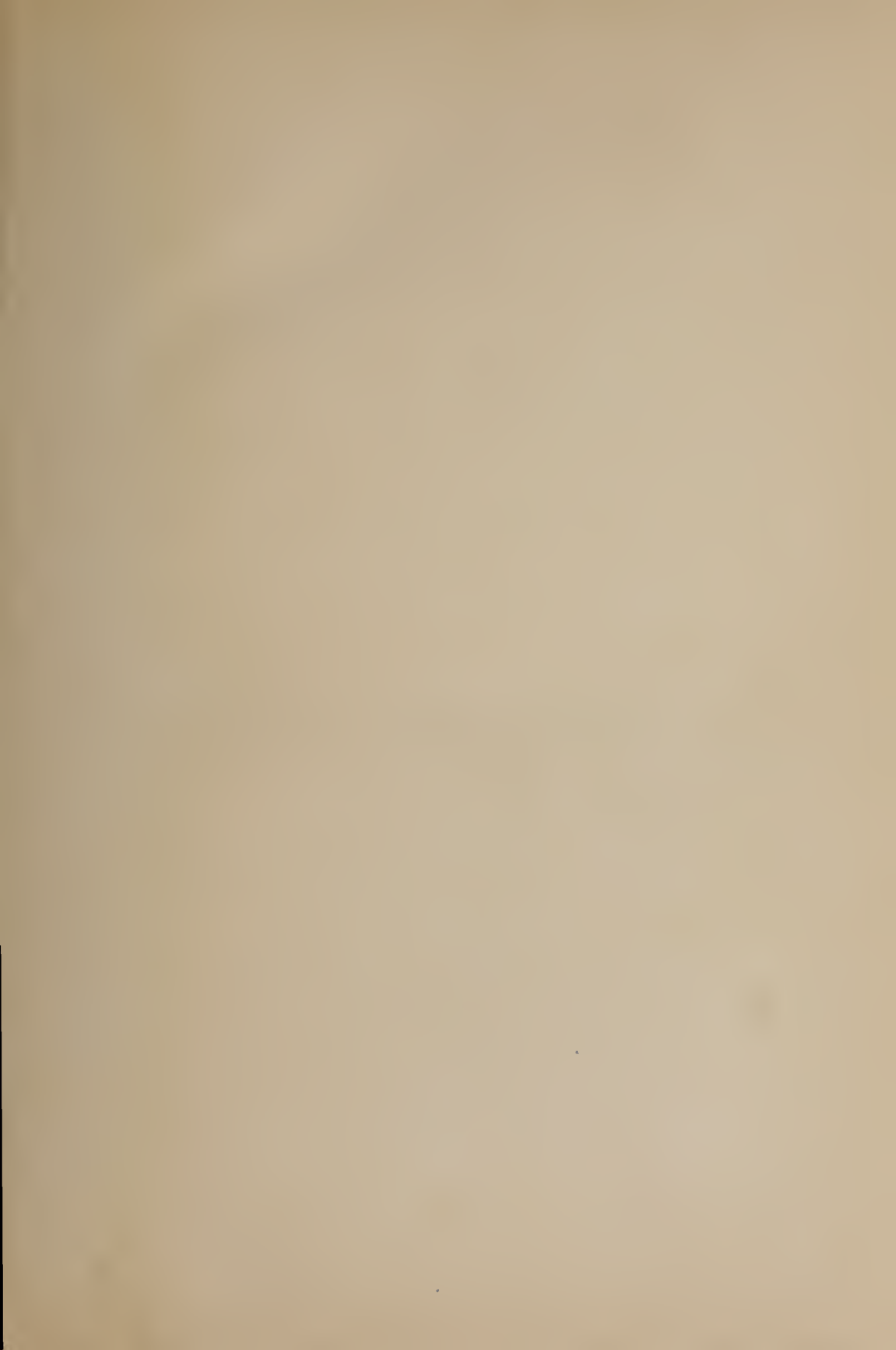
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MASSACHUSETTS STATE BUILDING.

REPORT  
OF THE  
MASSACHUSETTS BOARD  
OF  
WORLD'S FAIR MANAGERS.

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Boston, Sept. 25, 1894.

HIS EXCELLENCY GOVERNOR FREDERIC T. GREENHALGE *and the Honorable Executive Council.*

SIRS :—The Massachusetts Board of World's Fair Managers, having completed their labors, beg leave to submit to you for your consideration the following report, showing the methods adopted by them in the prosecution of their work, the amounts of money, in more or less of detail, expended out of the appropriations made by the several Legislatures ; reports made to them by those having charge of the several State exhibits ; and papers prepared by different writers on various exhibits from the Commonwealth.

Respectfully submitted,

MASSACHUSETTS BOARD OF WORLD'S FAIR MANAGERS,

FRANCIS A. WALKER, *Chairman.*

ALICE FREEMAN PALMER.

ANNA L. DAWES.

EDWARD BURNETT.

E. C. HOVEY, *Secretary.*





# REPORT.

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## ORGANIZATION AND WORK OF PREPARATION FOR EXHIBITS.

The General Court of Massachusetts in the year 1891 adopted the following Resolve, which, on May 28 of that year, received the approval of His Excellency the Governor: —

*Resolved*, That for the purpose of exhibiting the resources, products and general development of the Commonwealth at the World's Columbian Exposition of the year 1893, a Board of World's Fair Managers of Massachusetts, consisting of five residents of the Commonwealth, of whom three shall be men and two women, shall be appointed by the Governor by and with the consent of the Council. The said Board shall have charge of the interests of the Commonwealth and its citizens in the preparation and exhibition at the World's Columbian Exposition of the year 1893, of the natural and industrial products of the Commonwealth and of objects illustrating its history, progress, moral and material welfare and future development, and in all other matters relating to the said World's Columbian Exposition; it shall communicate with the officers of, and obtain and disseminate through the Commonwealth all necessary information regarding said Exposi-

tion and in general have and exercise full authority in relation to the participation of the Commonwealth and its citizens in the World's Columbian Exposition of the year 1893. To carry out the provisions of this resolve, a sum not exceeding seventy-five thousand dollars may be expended under the direction of the Governor and Council, provided that of such sum not less than ten thousand dollars shall be devoted to the educational exhibit of the Commonwealth.

Under the provisions of the foregoing resolve, His Excellency the Governor appointed and the Council confirmed the following members of the Board of World's Fair Managers: Gen. John W. Corcoran of Clinton, Mrs. Alice Freeman Palmer of Cambridge, Miss Anna L. Dawes of Pittsfield, Hon. Edward Burnett of Southborough and E. C. Hovey of Brookline.

The General Court of Massachusetts in the succeeding year, namely, during the year 1892, adopted the following resolve:—

*Resolved*, That for the purpose of exhibiting the arts, industries, institutions, resources, products and general development of the Commonwealth of Massachusetts at the World's Columbian Exposition at Chicago, in the State of Illinois, in the year 1893, there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding seventy-five thousand dollars (\$75,000.00), to be expended under the direction of the Governor and Council to carry out the provisions of this resolve; the sum to be in addition to the seventy-five thousand dollars (\$75,000.00) authorized by chapter 98 of the Resolves for the year 1891.

*Resolved*, That the Massachusetts Building and, as far as

the same is under the control of the Board of Managers, the Massachusetts exhibit be closed on the first or Lord's Day.

This resolve received the Executive approval on May 6, 1892.

On the twenty-fifth day of March, 1893, His Excellency the Governor gave his approval to the following resolve passed by the General Court of the year 1893 : —

*Resolved*, That for the purposes of exhibiting the arts, industries, institutions, resources, products and general development of the Commonwealth of Massachusetts at the World's Columbian Exposition at Chicago, in the State of Illinois, in the year 1893, there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding twenty-five thousand dollars (\$25,000.00), to be expended under the direction of the Governor and Council to carry out the provisions of this resolve ; the sum to be in addition to the amounts heretofore authorized.

The members of the Board, having received their commissions under date of July 16, 1891, held their first meeting on July 30 of that year in the Sears Building, Boston, and organized with the choice of John W. Corcoran as Chairman and E. C. Hovey as Secretary.

The Chairman and Secretary having been appointed a committee, with full powers, to provide permanent quarters for the Commission, executed a lease, expiring Jan. 1, 1894, for offices in Sears Building, Boston, at an annual rental of twelve hundred dollars.

Shortly after the organization of the Board, the Chairman and Secretary visited Chicago for the purpose of becoming acquainted with the Exposition officials, as well as to learn the many details incident to the work which had been given them to do. From that time until the 1st of December, 1893, members of the Board were in Chicago a part of every month; and it is believed that it is largely through the hearty co-operation of the Exposition officials which naturally followed these continued visits that the results have been obtained of which mention is made in this report.

Desiring that the Commonwealth should hold a position equally as important in the World's Columbian Exposition of Chicago as she did in the Centennial of 1876, in Philadelphia, the Board at once took steps to awaken an interest throughout the Commonwealth among the people of the State. This was accomplished by addresses made before boards of trade, by attendance upon meetings of commercial clubs, by the issuing of circulars and by an extensive correspondence.

At the time of their appointment the members of the Board found a decided want of interest in the Exposition, and it was not until some time thereafter that they obtained very much encouragement from the citizens of the State.

The agencies above referred to, together with the press, to which the Board are very glad at this time to extend their cordial acknowledgment for assistance ren-

dered, finally awakened an interest, the demands for space in the Exposition becoming so threateningly large as to bring about a condition of affairs which make it possible to say that the space asked for was sufficient to have filled an exposition even three times the size of that contemplated.

It was at this time that two members of the Board were in Chicago and learned that the space originally intended for the Department of Education had been so curtailed by reason of the fact that the commercial exhibits were being continually cared for to the detriment of exhibits in the Department of Liberal Arts. They protested in the name of the Commonwealth against the further robbery of the space needed by the educational interests of the country. Requesting a hearing before the Executive Committee of the World's Columbian Exposition, they appeared before that body in person and filed numerous protests in the shape of telegrams and letters, not only from citizens of the Commonwealth, but from those of sixteen States of the Union. The space, however, had been so fully assigned in the buildings then erected that there was but one way by which education could receive its proper recognition, this being through the erection of a new building. After some weeks' delay the petition of the Massachusetts Board of World's Fair Managers, endorsed as it was not only by those to whom reference has already been made but by people from all over

the country, was finally granted, resulting in the construction of the building now well known as the Anthropological Building, within which was contained the interesting, instructive and valuable exhibit collected together under the management of Prof. Frederic W. Putnam and two bureaus from the Department of Liberal Arts, namely, those of Hygiene and Sanitation, and of Charities and Correction.

While this was a decided victory and of great benefit to the cause of education, it was, nevertheless, impossible to carry out the plans previously decided upon for the installation of the educational exhibits of the world. These it had been primarily intended to place on the ground floor of the great Liberal Arts Building; but it was found necessary to remove them to the gallery, where, although the space was perhaps as extended as that which could have been given for the purpose on the ground floor, it was, nevertheless, much less convenient for exhibition purposes and absolutely prevented a method of installation which was considered very desirable.

During the period of time between the appointment of the Board and the removal of their offices from Boston to Chicago, there was a vast amount of correspondence necessary with intending exhibitors in the way of imparting information and giving such aid as should be of service to the exhibitor in his negotiations with the Exposition officials. The amount of detail



necessarily incident to work of this kind was very large, and it was the aim of the Secretary of the Board at all times to keep himself so thoroughly informed as to the wishes of, and the methods adopted by, the administration of the Exposition as to enable him to give correct and intelligent information to the inquiring exhibitor, speedily and authoritatively. This work, however, became in a very short time so great and yet at the same time so very important that early in November, 1891, the Board requested the Governor and Council to appoint Mr. Hovey, the Secretary of the Board, Executive Commissioner, at a salary of five thousand dollars per year. This was done by vote of the Council, November, 1891. Since that time the Secretary has been acting not only as such, but also as Executive Commissioner, and by vote of the Honorable Council, at a later period, as Treasurer also.

Upon the organization of the Board it was voted that regular meetings should be held on the first Friday of each month. During the years 1891 and 1892 these meetings were regularly held on the appointed day. During 1893, however, the meetings of the Board were held upon special call, as occasion required. Throughout the continuance of the Commission there has been an average of more than one meeting a month.

*STATE BUILDING.*

Soon after the organization of the Board it became necessary to consider whether the Commonwealth should occupy the ground which had been allotted to it on the Exposition grounds for the erection of a State building.

The Board, having secured one of the four most desirable sites on the main avenue on which were to be erected the State buildings, decided that the Commonwealth should be thus represented; and, to that end, asked several architects to submit plans, suggesting that the building should be in the spirit, if not an exact copy, of some one of the many well-known historical buildings within the State.

At a meeting held at the office of the Board on Sept. 4, 1891, five separate designs and floor plans were submitted for their consideration. It was finally decided unanimously to select the design submitted by Messrs. Peabody & Stearns of Boston.

In order to bring the matter to the attention of the Governor and Council, the Board of World's Fair Managers obtained from a contractor an estimate (not a bid) of the cost of putting up this building.

At a meeting with the Governor and Council on Oct. 7, 1891, the Board submitted the design selected by them, together with plans, and asked that they be authorized to spend a sum not exceeding \$35,000 "for the purpose of constructing and furnishing a State building at the Columbian Exposition in Chicago."





MASSACHUSETTS STATE BUILDING — Reception Room.



This request was granted, and the sum indicated was afterwards increased, by vote of the Governor and Council, under date of March 5, 1892, to \$50,000, said sum to cover the entire cost not only of constructing but also of furnishing said building.

On the twenty-first day of March, at a stated meeting of the Board, all bids which had been received, in answer to a printed advertisement in several of the Boston papers, were opened and the contract for erecting the building under the specifications submitted at the time was let to Mr. C. Everett Clark, a Boston contractor, for the sum of \$39,494.

It must be said in this connection that certain items of necessary expense were withheld from the specifications by reason of the fact that the Board had reason to expect that certain articles which naturally would have been included would be donated to the State. Other items, such, for instance, as grading and sodding the grounds around the State Building, and architects' commissions, did not properly come within the specifications by the contractor.

The total cost of the State Building, with these items added to the bid, as made by and accepted from the contractor, amounted to \$46,550.41.

A list of those who assisted in the construction and furnishing of the Massachusetts State Building, free of expense to the State, appears in Appendix A.

When it became necessary to consider the question

of furnishing the Massachusetts State Building, the Board of World's Fair Managers decided to obtain, if possible, from manufacturers of furniture within the State, as well as from dealers in furnishings, such articles as would be needed to make its interior attractive and comfortable and at the same time as truly colonial and historical as its members believed its exterior to be. To that end they negotiated with parties throughout the State, the result being that, with the exception of one or two pieces of furniture which it became necessary to buy after the managers had taken possession of the building, there was not a piece of furniture in the house for which the State paid. This statement covers electric chandeliers, tiles, mantelpieces, part of the plumbing, carpets, window screens, stained glass windows, — indeed, almost everything which was within the building.

Most of the furniture was made especially for the building, after designs of old furniture which was used in pre-Revolutionary times, though in one room there was not a piece of furniture which was less than a hundred years old.

There were on the walls of the Massachusetts State Building a collection of pictures, not one of which had not some association with the history of the Commonwealth. Most of these, as also relics and historical collections, were kindly loaned by citizens of the State, a list of whom appears in Appendix B.



MASSACHUSETTS STATE BUILDING, — Essex Institute Parlor.





The Board, wishing to give to the building an historical interest, opened a correspondence with the several historical societies within the Commonwealth, with the hope that they might be induced to loan some of their rare and interesting relics. The success which these efforts met with is well known to the citizens of the State who visited the building.

It was, however, a matter of very great regret to the members of the Board that such well-known bodies as the Historical Society of Boston, the Bostonian Society, the Pilgrim Society of Plymouth and the Deerfield Historical Association found themselves unable, by reason of the fact that many of the articles were in their possession only for safe keeping, to send to the Massachusetts State Building some contributions to the historical interest which the building awakened.

Within its walls were brought together historical relics to the value of over \$20,000.

The Board wish at this time to publicly extend the thanks of their members to the Essex Institute of Salem, to the committee of ladies of Boston, to the Cape Cod Association and to the many individual contributors by whose efforts the house was made so interesting.

No citizen of the Commonwealth could pass through that building without finding many historical articles to call forth his interest and curiosity; and it is with great satisfaction that the Board are able to report that the generosity and public spirit shown by these citi-

zens of the Commonwealth were fully appreciated by the citizens of the State.

It is also with great satisfaction that the Board are able to report to His Excellency the Governor and the honorable Executive Council that not a single one of these articles, cherished as they naturally are by their owners, has been lost or broken, or has failed to be returned.

It seems fitting that the contents of the building should be entered into in more or less of detail, for it is undoubtedly true that they gave much interest to the visitors who realized their historic importance and who appreciated the opportunity of seeing on the walls the faces of so many of the men and women who have helped to make the Commonwealth what she has always been and what she is to-day.

It is not necessary, perhaps, to give an inventory of these articles; but the Board feel that they would fall short of their duty if they did not recur to a number of them which were of especial interest to the sons and daughters of the Commonwealth, and thus retain in permanent form a description not only of the building but of its contents as well.

Desiring that those who visited the building might be made familiar not only with the faces but oftentimes with the handwriting of the men and women of Massachusetts whose reputation and good work in different walks of life are, in many cases, international, the Board made a careful selection of those to be included in this roll of





MASSACHUSETTS STATE BUILDING, — MEN'S PARLOR. First View.



honor, confining themselves, with but few exceptions, to those who were not living. By borrowing, or in some few cases by purchase, they obtained the pictures which for six months helped to tell the story of the progress and development of the Commonwealth.

As representatives of reformers there were placed on the walls of the Massachusetts State Building pictures of Wendell Phillips, William Lloyd Garrison, Charles Sumner, Robert C. Winthrop, John Hancock, Robert Treat Paine, the three Adamses and Theodore Parker.

Representing the church were such worthy faces as those of William E. Channing, Jonathan Edwards, Bishop Brooks, James Freeman Clark, Bishop Haven, Professor Hedge, Bishop Hackett and Hosea Ballou.

Statesmanship furnished portraits of Daniel Webster, John A. Andrew, George Cabot, Edward Everett and Timothy Pickering.

From the long list of historians of which the Commonwealth may be justly proud, there were selected portraits of John Lothrop Motley, George Bancroft, Francis Parkman, George Ticknor and William H. Prescott.

In the field of letters were seen such well-known faces as Ralph Waldo Emerson, Oliver Wendell Holmes, Henry W. Longfellow, John Greenleaf Whittier, Nathaniel Hawthorne, Richard H. Dana, W. D. Howells, Thomas Bailey Aldrich, John Boyle O'Reilly, James Russell Lowell, Thomas W. Parsons, William Cullen Bryant, Thomas Wentworth Higginson, Helen Hunt

Jackson, Celia Thaxter, Louise May Alcott and Lucy Lareom.

The bench and bar were well represented by portraits of Lemuel Shaw, Theophilus Parsons, Rufus Choate, Judge Devens, Nathan Dane, Joseph Story and Samuel Sewall.

Among the scientists were seen the faces of Nathaniel Bowditch, the two Bigelows, Benjamin Pierce, Benjamin Franklin and Professor Agassiz.

As representatives of philanthropy and benevolence were seen the faces of Maria Weston Chapman, Lydia Maria Child, Dorothea Dix and George Peabody.

The martial element was fitly shown in the faces of General Hooker, General Lowell, General Bartlett, General Sumner and Colonel Shaw.

The early Colonial and pre-Revolutionary days had fitting representatives in the faces of Governor Endicott, Governor Bradstreet, William Pynchon, Governor Winthrop and Governor Winslow.

Commerce furnished the faces of such men as Joseph Peabody, John Bertram, William Gray, Jr., Elias Haskett Derby and Benjamin Pickering.

Such, then, is the list, in part at least, of the faces which were placed before the visitors to the Massachusetts State Building, — faces which served to remind the sons and daughters of the Commonwealth of the part which Massachusetts has played in the several fields of which these portraits were representatives.

Among the many articles of especial interest within



MASSACHUSETTS STATE BUILDING, — Staircase.





the building there were perhaps no two which awakened a livelier interest than the manuscript speech of Charles Sumner, delivered in the Senate Chamber in Washington in 1856, which speech was followed a few days after by the blow from Brooks; and the original watch, fully authenticated, brought by Miles Standish when he came to this country in the "Mayflower." It may, however, be admitted that an equal interest was awakened by the sight of the Adams cradle, in which the members of five generations, including two Presidents of the United States, had been rocked in their infancy.

One room within the State Building, which was given over to the Essex Institute of Salem, within which they might place a collection of portraits and of historic relics, was interesting and instructive almost beyond description. It was to this that reference was made in the statement that one room within the building contained no piece of furniture less than a hundred years old. Here might be seen interesting examples of the old court cupboard, oak chest and reading chairs of the Colonial period, secretaries and sideboards and settles of the Revolutionary and pre-Revolutionary times, chairs and tables representing the witchcraft period, and two hall clocks, — one in a black oak case with works made in Halifax, England; the other in a solid mahogany case, which must have been made in Lexington before the battle which has made the name of that town historical.

On the walls of this room were pictures — some photographs, some engravings and some in water colors — showing well-known houses in Salem and representative of the various styles of architecture in use in Colonial and pre-Revolutionary times; such, for instance, as the Narbonne house, still standing, though built in 1680, “a good illustration of the architecture of that period, showing the lean-to roof;” the Ward house, built in 1684, and not yet destroyed, which “shows the overhanging second story which romance attributes to being used as a protection against the Indians;” the Cabot house, built about 1748, “a fine illustration of the Colonial type, showing a good example of the gambrel roof;” the Roger Williams house, “familiarily called ‘Old Witch House,’ owned in 1635 and 1636 by Roger Williams, and occupied in 1692 by Jonathan Curwen, one of the judges in the witchcraft trials;” and the Emerson house, “built in 1817 and remodelled in 1876, a good example of Colonial spirit in modern architecture.”

On the sideboards and mantels and within the several cupboards were to be seen examples of old china, some decorated and some plain, some of American manufacture and some which had been imported, dating back in some instances to a period as early as 1675. Here was to be seen a silver cream jug, the “marriage pitcher” of Susannah Ingersoll and Daniel Bray, 1680, descended through the family of Philip English to





MASSACHUSETTS STATE BUILDING, — Staircase.



Susannah Ingersoll, occupant, in Hawthorne's time, of the so-called "House of Seven Gables;" and candelabra and brass candlesticks without number.

Within the ten cases provided by the Essex Institute in which to display the collection of historic relics, were to be seen articles of a great variety of description, and all of the highest interest. In one there were collected together "the coins and paper currency of Massachusetts Bay in New England during the Colonial and Revolutionary periods, covering issues from 1650 to 1788." These were all in fine condition, and included a New England shilling, minted in Boston in 1650, "pine tree" and "oak tree" shillings, "pine tree" sixpences, "pine tree" threepences, "oak tree" twopennies, all of the issue of 1562, and "Indian" cents and half cents; and paper currency, beginning with a bill of five shillings issued in 1690, and coming down to the Continental currency of Massachusetts Bay issued in 1780.

In the second case, which was given over to examples of early New England presswork, were placed almanacs of the eighteenth century; an original engraving by Paul Revere in its original frame; a pamphlet containing abstracts of Massachusetts Criminal Law printed in 1704, containing the famous "Scarlet Letter" law; another relating to the Manle controversy; Salem and Boston newspapers of the eighteenth century, "including one in mourning announcing the

death of George Washington;” and, what was of singular interest to all those whose attention was called to them, four lottery tickets, one issued by the United States Government in 1776 to recoup war expenses, a second issued by the State of Massachusetts in 1771 to procure funds, a third which was placed upon the market by Harvard College in 1795 for educational purposes, and finally, one which in 1802 was put forth by a church in Bristol, R. I., evidently in need of funds to support the ministry and pay the expenses incident to worship.

In still another case were to be seen examples of old-time needlework. Among these was a “sampler wrought previous to 1628 by Anne Gower, the first wife of Governor John Endicott.”

Among the early theological and witchcraft manuscripts to be seen in the next case were sermons preached by several of the ministers of Salem, including the Rev. Mr. Pickman in 1644, and one preached by the Rev. George Curwin in 1716, evidently as a thanksgiving offering for the success of George the First over the Pretender. Here also was the deposition of Mrs. Anne Putnam and Anne Putnam, Jr., under date of May 31, 1692, against Rebekah Nurse and others who were hanged for witchcraft in 1692; the indictment of Abigail Hobbs for “covenanting with the Devil;” and a deed of land signed by Bridget Bishop in 1699, the said Bridget Bishop being the first victim of the witchcraft craze.



MASSACHUSETTS STATE BUILDING. — PARLOR ON SECOND FLOOR. First View.



In another case were to be seen manuscripts of a commercial nature, including an account book dated 1678 and 1690; bills of lading of the eighteenth century; bill of exchange and policy of insurance, — all of a time prior to the opening of the present century; while in still another case were official manuscripts, including an autograph letter of Benjamin Goodhue, the first member of Congress from the Essex District; “Resolution of the Continental Congress at Philadelphia, directing George Washington to raise troops in New Hampshire, signed by General Hancock, President, and Charles Thompson, Secretary;” a state paper signed by James Monroe, Secretary of State, under date of Aug. 28, 1812; and a botanical note book of Manassah Cutler, who “made the first scientific description of the plants of New England,” and who also “started the first party of emigrants to Ohio.”

In the other cases were placed a collection of medals, bronze and copper; gold-mounted seals; examples of the old “tinder boxes, with flint, steel and tinder;” steelyards used in 1738; “pitch pipe used for setting the tune in church choirs and in singing schools;” and a small iron shovel formerly belonging to and used no doubt by Benjamin Franklin to light his pipe; tobacco and snuff boxes; shoe buckles and knee buckles; pocketbooks and large tortoise-shell combs; and, as an interesting article, a pair of pattens,



“the forerunner of rubber shoes,” and a pair of old Pará gum shoes, the first lined rubber shoes used.

It should not be forgotten to call attention to a case on the wall containing a number of examples of the old silhouettes which were so common in the early days of the present century, as well as prior thereto.

The foregoing are but the cullings from this very interesting museum of historical relics, collected through the industry of the citizens of Salem, and, through their liberality, courtesy and public spirit, placed within the keeping of the Massachusetts Board of World's Fair Managers, as the contribution of Essex County to the State Building at the World's Columbian Exposition.

The Board take pleasure, too, in testifying to the very commendable and interesting collection which, through the zeal and enthusiasm of a committee of Boston ladies, was sent to Chicago to be placed in the large parlors of the State Building, these latter having been set apart for their especial use. Although it was not until the time of opening the Exposition had nearly arrived that this committee was appointed, the articles collected lent great interest to the building, consisting as they did of pictures (one an excellent Copley), autographs and manuscript documents, dresses, bonnets and other articles of wearing apparel of the Revolutionary period.

Too great credit for the success of the Massachusetts





MASSACHUSETTS STATE BUILDING, — Women's Parlor.



State Building cannot be given to these ladies, by whose earnestness and interest so many articles of priceless value to their owners were committed to the care of the Board, whose members are glad of this opportunity to acknowledge the hearty and enthusiastic support which they received from the ladies having this especial collection under their charge. From Cape Cod were sent a number of articles, mostly pictures, having to do with the annals of that historic ground. An account of the Massachusetts State Building at Chicago would be incomplete indeed did it not contain especial reference to a unique collection of photographs and autographs which was made possible through the generosity and public spirit of Mrs. Maria S. Porter of Boston. Not to enumerate them all, it may perhaps be not inappropriate to call attention to a few from among the many which certainly were looked at, studied and appreciated by many thousands of visitors during the six months of the Exposition. An autograph letter of Hawthorne in a frame which likewise contained an excellent likeness of him called vividly to mind a personality of whom Massachusetts has always been justly proud; while side by side with this was a photograph of James Russell Lowell, with a copy of one of his beautiful verses in his own handwriting. Who can measure the interest with which the numberless visitors gazed upon the face of Oliver Wendell Holmes, framed as it was with a copy of "Old Ironsides," a copy, too, on

which the ink was scarcely dry, he having made the same but a few months before the opening of the Exposition? Those who were present will surely never forget the interesting occasion when Dr. Smith, the author of "America," saw his own face before him and read his own manuscript of this our national hymn. Nor can one forget the verses and portrait of Lucy Lareom, hung on the walls of the State Building on the day of her death, or a manuscript of beautiful verses by Julia Ward Howe in memoriam of T. C. Crawford. A photograph of Bishop Brooks, accompanied by the famous tribute to this great man in the handwriting of that other great divine, James Freeman Clarke, was read and pondered over by many. These are but a few examples taken from this interesting collection. They surely proved to be a great feast to those who gave the time to carefully examine them, and surely did they lend their full measure of interest to this interesting building. It would scarcely be possible to call attention to each of the many articles loaned to the Massachusetts Board of World's Fair Managers by individuals within the State.

Reference may yet be appropriately made to a large mahogany secretary once used by General George Washington while he was in headquarters in Cambridge, to a red walnut writing-desk brought over to this country from England in the latter half of the seventeenth century, and to a piece of the manor house in Scrooby, within which were held those many meetings culminat-



MASSACHUSETTS STATE BUILDING,—WOMEN'S PARLOR. Second View.



ing in the departure from England and the arrival in Plymouth of those whose steadfastness of purpose and abiding faith have been the admiration of all succeeding generations.

These lines will in part serve their purpose if they recall to the minds of those who visited the building the great interest which its contents awakened. They should likewise testify to those of Massachusetts who were unable to visit the Exposition that the building and its contents were in every way worthy of the State and of her glorious history.

The twelfth day of October, 1892, being the four hundredth anniversary of the discovery by Christopher Columbus of the land to which was given the name of America, was, by the Exposition authorities, set apart as dedication day, the Exposition buildings being then dedicated with proper ceremonies and exercises. Although the Massachusetts State Building was at that time very far from completion, it was determined to take advantage of the presence in Chicago of the Chief Executive of the Commonwealth, to whom the building should be turned over, that he might dedicate it to the uses for which it was erected. Most informally, therefore, on Saturday morning, October 13, the building was visited by His Excellency Gov. William E. Russell, accompanied by the delegation from the Massachusetts Legislature. There they were received by the Executive Commissioner, who, in a few words,



tendered the Governor the building in the name of the Massachusetts Board of World's Fair Managers. In reply to the remarks of the Commissioner, the Governor made a short address, referring to the historical significance of the house and to the prominent part which the Commonwealth had always played in the nation's history. After dedicating the building to the uses of the citizens of the State, His Excellency and party were shown over the building, although its then condition gave but a faint idea of the real building which six months later was to welcome the sons and daughters of the Commonwealth.

The doors of the Massachusetts State Building were thrown open to the public on the first day of the Exposition, May 1, 1893, at 8 o'clock in the morning; and, with the exception of several days when they were necessarily closed to prepare for entertainments to be held in the evening, or to brighten up the paint which the feet of many thousands of welcome visitors had worn away, they were ever open from the morning hour until 6 o'clock at night, for the accommodation of visitors, whose comfort the Board and its assistants had always in view.

It would be difficult to state even approximately the number of people who visited the building during the six months from May 1 to October 30. The Board is able, however, by very careful estimates made, to assert that not less than eight hun-



dred thousand people came in and went out of its doors during that period of time. The two registers record the names of nearly one hundred thousand visitors, mostly citizens of the State or descendants of Massachusetts men and women.

During the summer several entertainments were given in the State Building,—one on the seventeenth day of June, which, at the request of the Board, had been set apart by the Exposition authorities as “Massachusetts Day,” when His Excellency Gov. William E. Russell held a reception within its walls, to which invitations were issued by the Massachusetts Board of World's Fair Managers; and a reception given by the Board, on the evening of September 28, in honor of the representatives of foreign governments and Exposition officials.

The seventeenth day of June, the anniversary of the battle of Bunker Hill, was observed on the grounds of Jackson Park in a manner befitting the position and dignity of the State of Massachusetts. In addition to the reception, to which allusion has been made, fireworks were displayed in the Court of Honor during the evening, toward the expense of which the Board of World's Fair Managers contributed the sum of \$1,200. These included not only the usual display but also set pieces, such as “Bunker Hill Monument” and the “State Building,” in Jackson Park.

It is interesting to know that up to that time, with

the exception of May 1 and June 15—the day set apart for the German Government—no larger number visited the grounds than on “Massachusetts Day.”

In the evening, the Chicago Society of the Sons of Massachusetts tendered to His Excellency the Governor and the delegation accompanying him a public banquet in the Auditorium Hotel, a courtesy which was a merited and pleasant tribute from the exiled sons of the State to her chief magistrate,—a courtesy, too, which was fully appreciated by her citizens as an honor paid to the Commonwealth.

In a communication addressed to them by a committee representing the heads of the several departments in connection with the Exposition, the Massachusetts Board of World's Fair Managers were asked to loan the State Building for the purpose of holding a reception which these gentlemen desired to give in recognition of the services rendered to the Exposition by the Commissioners from foreign countries, the Board of Lady Managers, the National Commission and the State Commissioners. Regarding this request as a compliment to the building which had been erected by the Commonwealth, the Board were very glad to grant the permission. This reception given by the exposition officials was one of the most brilliant social functions connected with the Exposition. It was freely said that no social events which took place on the Exposition grounds were more successful or more enjoyable than



MASSACHUSETTS STATE BUILDING, — Governor's Apartments.



were those held within the Massachusetts State Building.

The Board are of opinion that the money expended by the Commonwealth in thus returning civilities extended by the Exposition authorities, by foreign commissions and by the National Commission was well expended and redounded to the credit and good name of the State.

The Massachusetts State Building called forth so much praise, being a reproduction, in part, of a house well known to Bostonians of a generation since, that it has seemed to the Board its architectural features should be noted. Knowing of no one better qualified to do this, they have asked its architects, Messrs. Peabody & Stearns of Boston, to furnish them for this report a few words in connection therewith.

In a letter received from them under date of Jan. 16, 1894, Messrs. Peabody & Stearns make use of the following words:—

In casting about for models that might fitly recall New England surroundings, the old State House at the head of State Street, and the Hancock mansion, which once stood on Beacon Hill, seemed to offer the best possible types. This Hancock house, with its terraced gardens, was the most picturesque as well as the most architectural of these two buildings. For these reasons it was selected as a model. But the Massachusetts house was never intended to be, in absolute strictness, a copy of the old Hancock mansion. The old house would have seemed lost in the company of the

large fair buildings, and larger accommodations were required by the State Commissioners; besides, the instructions, from those in charge in Chicago, were distinct, that the State buildings should, in all cases, be something more than modest private houses. In this way it came about that the Massachusetts house was an enlarged and enriched version of the home of the bold signer of the Declaration of Independence.

The valuable quality in the design of the original Hancock house was the air of aristocratic distinction and reserve and dignity that it bore, without losing a homelike and comfortable appearance. Every endeavor was made to retain these virtues in the new building, but its greater size made additional features necessary. In adding these, old models were closely followed; the columns and gable over the entrance were almost transcripts of those of a well-known mansion at Danvers, and the lantern, raised upon the roof and surmounted by a codfish vane, was modelled on ancient lines. This lantern was added to the building in deference to the orders that the building must be made to look like a State building rather than a private house. By setting the terrace wall back to the building line and calling the whole raised terrace an essential part of the structure the raised court that surrounded the house was permitted by the authorities, in spite of the rule against enclosed front yards. As in the old house, this raised terrace, with its old-fashioned fences and well-stocked flower beds, added more than any one feature to the look of dignified repose which pleased visitors to the Massachusetts house.

Once within the house, no attempt was made to follow the line of the Hancock house. To make a commodious and simple interior in keeping with the exterior was the single aim in view. The staircase, with its broad landing and triple window, is like many that remain in Portsmouth and Newport. The mahogany doors and white door frames and man-





MASSACHUSETTS STATE BUILDING, — PARLOR ON SECOND FLOOR. Second View.





tels and wainscots all followed the old patterns. The hall was tiled with red brick tiles, browned with oil and wax. In the general office the wainscot and the fireplace were made of Dutch blue tiles; hewn beams showed in the ceiling; leather fire-buckets hung from the tall mantel shelf. The sashes were filled with leaded glass, painted with the arms of early New England settlers, and the room altogether was such as might have been, although it followed no definite model.

While the Massachusetts house seemed to be built of granite, unfortunately this was a deceit, the well-worked granite blocks being really of staff. Like the larger buildings of the Fair, much of the house is, hence, unfit for removal. The State, however, still has some property there in the shape of mahogany doors, handsome inside finish, tiles, mantels, fireplaces, stairwork and stained glass.

In October, 1892, upon the resignation of Gen. John W. Corcoran to assume the duties of Justice of the Superior Court of Massachusetts to which he had been appointed, His Excellency Gov. Wm. E. Russell nominated in his stead Gen. Francis A. Walker, who, at the first meeting of the Board thereafter, was elected to be its chairman.

Referring to the Appendix, where will be found a list of those Massachusetts exhibitors who were granted medals and diplomas, the Board wishes to briefly state the system under which these were distributed:

Each of the great departments of the Exposition had assigned to it a body of jurors, consisting, in each case, of approximately fifty men and women. To these jurors

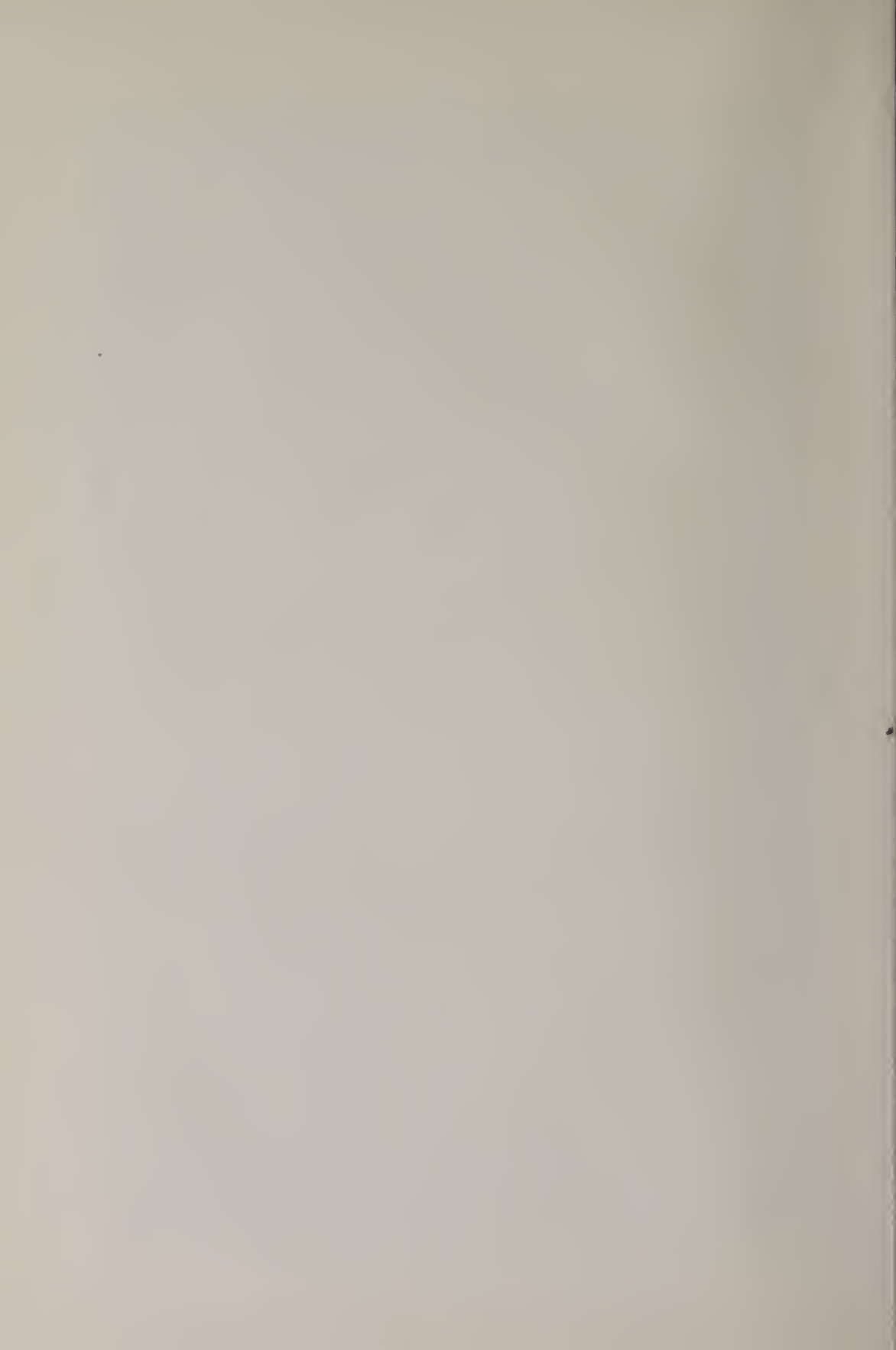
was assigned the duty of examining and reporting upon the different exhibits, in some cases one juror alone examining the exhibit, while in others the examining board consisted of three or more. Upon the written report of this juror or board of jurors (no protest having been lodged), the report of the whole body of jurors in each separate department was based. The examination of exhibits having been concluded, the findings of the jury, after having received the approval of its chairman, was sent to the Bureau of Awards, the official representative of the National Commission, for its endorsement. The decision of this Board was final. By them will be distributed medals and diplomas to those whose exhibits were considered worthy of this distinction, though, in all probability, the Bureau of Awards will consider it advantageous to make actual delivery of the same through the medium of the Boards representing the several States.

Twenty-three thousand medals and diplomas in all, approximately, will be distributed. Of these, about one-half will be awarded to American exhibitors, the balance going to foreign nations. To the Commonwealth, as an exhibitor, and to the individual representatives of her many industries, were awarded about six hundred medals and diplomas.

It must be understood that the report as herein made as to the distribution of medals and awards is based on the latest information received from the Bureau of



MASSACHUSETTS STATE BUILDING. — MEN'S PARLOR. Second View.



Awards in connection with the Exposition. The Board doubts not that there will be some changes, but they have endeavored to give herein the best and most trustworthy information which they could obtain.

Immediately after the closing of the Exposition, on the thirty-first day of October, the Board of World's Fair Managers busied themselves with such exhibits as were within their control, to see that they were properly packed and as speedily shipped as circumstances would allow. There was considerable delay in this work, but perhaps no more than was natural under the circumstances. The first articles to claim their attention were the interesting and valuable relics which had been loaned to them for use in the State Building. Feeling the responsibility which rested upon them, so far as the pictures were concerned, they decided to have them all taken from the walls of the State Building and sent to the store of an experienced picture dealer to be properly packed, and thence sent direct to each owner by express. The articles which the Essex Institute had so kindly loaned were turned over to their agents in the building, who attended to the packing; while the committee of ladies who had generously provided a collection, which was in the ladies' parlor, received them from the Board, attending to the shipment themselves. The balance of the articles in the building, such as furniture, gas-fittings, windows, tiles, fireplace furnishings and the like, were all packed under the superintendence of the Board and

shipped by freight to Boston, where they were distributed among their respective owners. There was, however, within the State Building a number of pictures of Massachusetts men and women which had been either given to the Board or purchased. These, being the property of the Commonwealth, the Board of Managers have turned over to the Governor and Council, with the suggestion that they be hung in Memorial Hall, in the extension to the State House.

The packing of the several State exhibits was hastened as much as possible, all of the articles being forwarded by freight. It was not, however, until the very last days of January that the last shipment was received.

Perhaps the greatest responsibility which came to the Board was the care and final disposition of the works of art, to the value of \$140,000, which artists and private owners had generously loaned them that the display of the Commonwealth in the Fine Arts Building might be representative and worthy. Great delay was experienced in the packing and shipping of these, largely owing to the very severe wintry weather in Chicago, preventing the packers from doing long-continuous work in a building which had within it no means of heating. The two cars, however, which contained these works of art finally reached Boston during the last week of January, being consigned to the Charitable Mechanic Association Building, the basement of which was generously loaned to the Board for the purpose of



receiving and unpacking these pictures. This latter work was given over into the charge of Mr. J. Eastman Chase, the Board having its agent there to receive and account for the pictures as per the inventory received from the chief of the department. The condition in which the pictures were received indicated very great care on the part of the packers in Chicago, but little damage having been done to the frames, and practically no damage at all to the works of art themselves. Those frames which needed repairs were taken by Mr. Chase to his place of business, where the work was done. It was necessary that great despatch should be used in the unpacking and delivery of these goods by reason of the fact that it was impossible to secure insurance to a greater value than \$80,000. Within six days from the time the pictures were unloaded from the cars they were delivered to their respective owners or to the office of Mr. Chase.

It was with pain that the Board approached the disposal of the Massachusetts State Building, which for the six months of the Exposition had been a veritable Mecca for so very many of the citizens of the Commonwealth.

Several plans which they had in view had to be abandoned and at the end the Board were obliged to resort to one of those many wrecking companies, so called, to whom were sold most of the State and many of the Exposition buildings. By personal interviews with private investors the Board hoped to be able to

preserve the building. These efforts failing and the time becoming very short within which the Board were compelled to remove it, it was determined to dispose of the house to the highest bidder.

This action resulted in the sale for the sum of three hundred dollars, a sum which appears very small when compared with the cost, and yet an amount fully equally to that obtained by other States whose buildings were much larger than that of Massachusetts.

The cost to the State of the part which she took in the Exposition cannot justly be measured by the statement of expenditures as shown hereafter. Much of this cost consisted of the expense of collecting together the so-called State exhibit, most of which, as will be seen by the several chapters relating to them individually, have not been dissipated, but remain intact to serve as objects of study and comparison, from which to mark future progress.

The amount expended on the collection of the public school exhibit would have been well spent indeed, if only that the citizens of the State might have a pedagogical museum, from which one might study and compare the methods of instruction in use in different parts of the State. This long-hoped-for object the Board is glad to be able to report has been accomplished, they having turned over to the State Board of Education the entire public school exhibit to form the nucleus of a pedagogical museum, for the support of which the last Legislature made an appropriation.



The admirable State exhibit in the Bureau of Charities and Correction has been placed in the custody of the Board of Limacy and Charity, in whose offices provision has been made for its installation and care; while the agricultural collection, together with the comprehensive geological exhibit, have been deposited as State property with the Agricultural College, at Amherst. The State Board of Health has given the necessary space in their rooms for the complete and instructive exhibit to which the interesting paper of Professor Sedgwick, printed herewith, refers at length.

These exhibits have been so disposed that they may, while remaining the property of the Commonwealth, serve as a lasting memorial of the Exposition, and as an historical record of the stage of advancement attained by Massachusetts in humane, philanthropic and educational work, giving at the same time valuable opportunities for study to her citizens as well as to visitors from other States and countries.

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The remaining members of the Board find great satisfaction, upon concluding this report, in stating that the prestige of Massachusetts, as an exhibiting State, was much enhanced through the influence exerted by the Execentive Commissioner, Mr. Hovey, who, besides attending to the duties of his office, was able, as vice-

president of the Executive Commissioners' Association, to render signal services to the Exposition and its managers. That such services were appreciated is evidenced by the very notable testimonial presented to Mr. Hovey by the chiefs of the thirteen principal departments, upon the occasion of his departure from Chicago. That testimonial acknowledges in the strongest terms the work which Mr. Hovey had done in connection with the great exhibition. The Government of France, in recognition of the educational, scientific and charitable work of Massachusetts, as exhibited in the Department of Liberal Arts, has conferred upon Mr. Hovey the appointment of Officer of the Academy.





RUMFORD KITCHEN.

*THE RUMFORD KITCHEN.*

In the Department of Hygiene and Sanitation was the exhibit known as "The Rumford Kitchen," an outgrowth of the work in the application of the principles of chemistry to the science of cooking, which has for three years been carried on as an educational agency by Mrs. Robert H. Richards, of the Massachusetts Institute of Technology, and Mrs. John A. Abel, with pecuniary assistance from certain public-spirited citizens of Boston.

The Massachusetts Board of World's Fair Managers, recognizing the high scientific character of the work of the New England Kitchen over which these ladies preside, and believing that such a practical demonstration of the usefulness of domestic science could not fail to be of advantage to multitudes of visitors to the Columbian Exposition, invited Mrs. Richards and Mrs. Abel to open the Rumford Kitchen, as it is called, as a part of the exhibit of Massachusetts, in connection with the Bureau of Hygiene and Sanitation.

In order to reduce, in some degree, the expenses of the exhibit, the food cooked in the Rumford Kitchen was sold under a concession from the administration of the Exposition; but it should be understood that it was not in any sense a money-making exhibit;

that nothing was cooked for the sake of being sold; and that the exhibit was absolutely a scientific and educational one.

The Board refers with great pleasure to the very interesting report of Mrs. Richards which follows, and takes great satisfaction in the interest which this exhibit, endorsed as it was by the Commonwealth of Massachusetts, awakened among the visitors from all parts of the world. The Board is confident that the results following the expenditure of State money for the purpose of making known the scientific work done by Mrs. Richards and those associated with her must of necessity be far-reaching and tend to popularize the very great importance of the subject to which it related.

Boston, Dec. 27, 1893.

*The Massachusetts Board of World's Fair Managers, Sears Building, Boston.*

SIRS: — At your request, I beg leave to submit the following report, having to do with the exhibit made under your auspices under the name of the “Runford Kitchen.”

The removal of the Bureau of Hygiene and Sanitation, late in the season, from the Liberal Arts to the Anthropological Building necessitated an entire change of plans in regard to this exhibit. A space thirty by forty feet was secured near the south door of the Anthropological Building, and on this was placed a one-story frame structure finished as one room. The cost of the house was \$700; that of the drainage, which was not at all planned for by the Exposition authorities in laying out that part of the grounds, was \$429.87. The house not being ready by the 1st of





RUMFORD KITCHEN, — Interior.





August, it became necessary to send everything by express. On the other hand, the labor incident to the erection of this building was very much less than it would have been earlier in the season. The expense of the fittings and installation, including models, charts, china, filters, etc., was \$1,822.38, of which sum \$136.91 was for express alone. The total expense connected with this exhibit, including wages, the cost of food, gas, ice and other incidentals, amounted to \$6,111.37. The total receipts from all sources, including sale of food and sale of plant at the end of the Exposition, amounted to \$4,515, leaving a deficit of \$1,596.37. From the receipts for sale of food there was paid to the authorities the sum of \$890.63, the same being thirty per cent. of the gross receipts. Contributions from public-spirited citizens, amounting to \$1,900, were made for the exhibit. The apparatus and a part of the furniture was sold to the University of Chicago for \$250. The china is at present stored. The house remains intact, there being a possibility that something may be obtained for it, it being in such shape as to be readily removed and fitted for a dwelling. The models and photographs which awakened so much interest have been removed to Boston, and a large portion of the printed matter calling attention to the kitchen and the work done in connection therewith, was left at Hull House, the College Settlement in Chicago, for further distribution, the balance of which was returned to Boston, being still in constant demand.

The intention of the exhibit was to illustrate the present state of knowledge in regard to the composition of materials for human food, the means of making these materials most available for nutrition, and the quantity of each necessary for a working ration. It was also in part intended as a centennial celebration of the services to humanity of a man of Massachusetts birth and parentage, Benjamin Thompson,

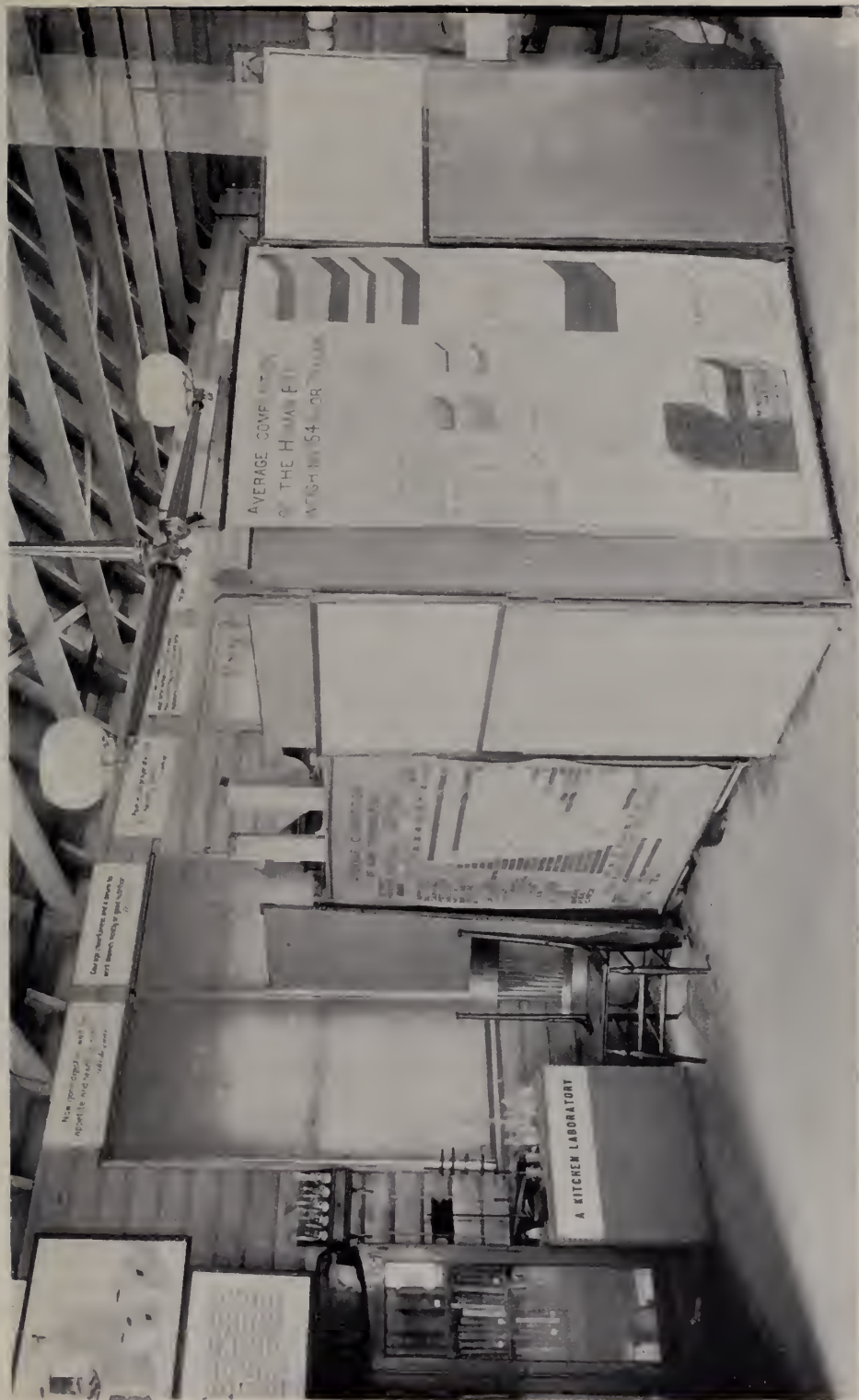
Count Rumford of Bavaria, the first to apply the term "science of nutrition" to the study of human food, and the first to apply science to the preparation of food materials.

Not the least valuable part of the exhibit consisted of the series of pamphlets prepared for the Rumford Kitchen by authorities in the several departments of science which relate to human food and nutrition. That such men as Professors Reimsen and Abel of Johns Hopkins University, Professor Chittenden of Yale University, Professor Sedgwick of the Institute of Technology, Professor Howell and others were willing to prepare these scientific papers shows a great step toward placing this branch of sanitary science in its rightful place.

This series is not yet quite complete, though it will finally appear in book form as a permanent result of the Chicago Exposition.

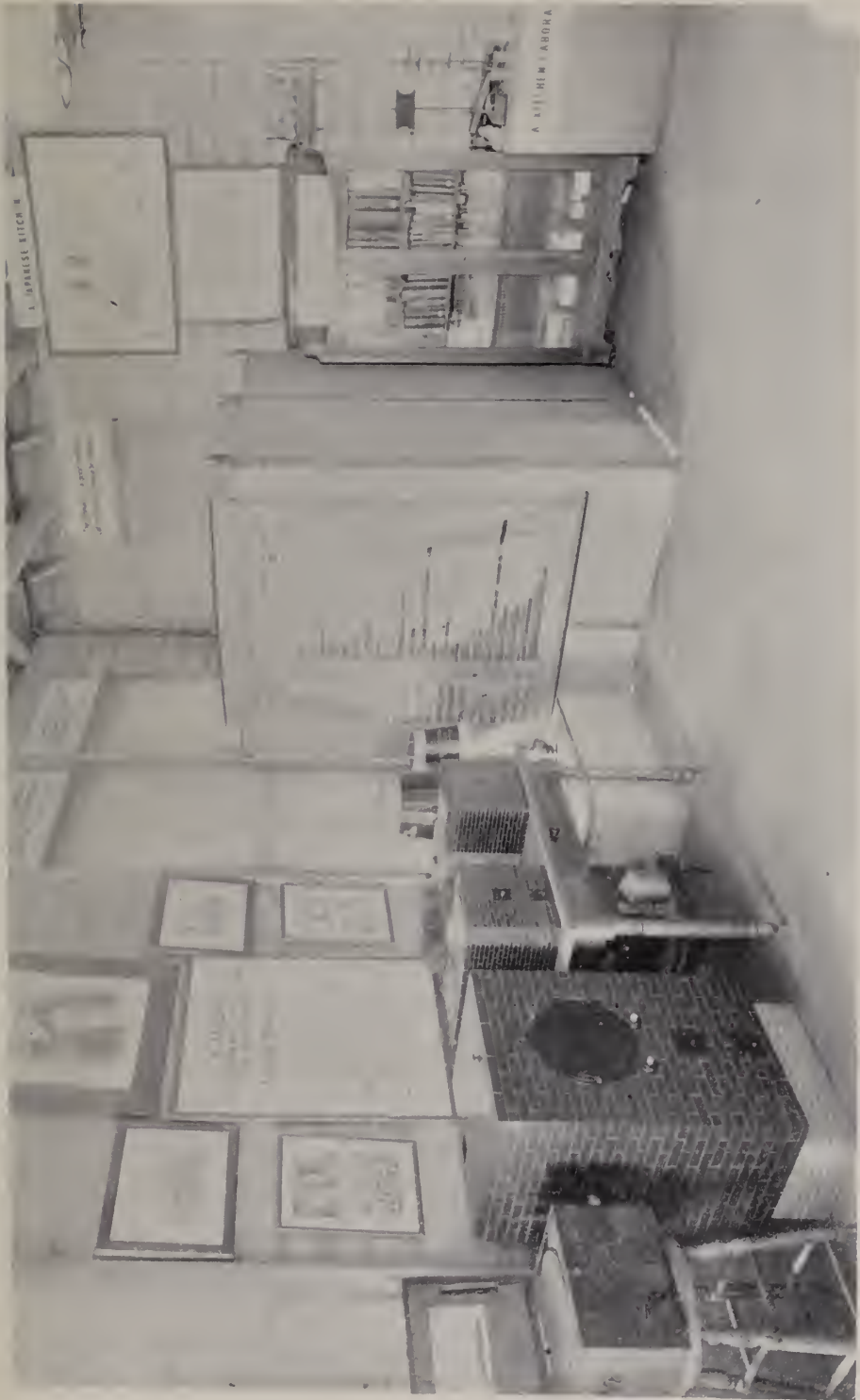
The charts, diagrams and books of the exhibit were studied with great eagerness and cannot but have given impetus to the investigations in these directions; while the practical outcome of the taste and relish of the food served was shown in the fact that some ten thousand people were served during the two months that the kitchen was open, between the hours of twelve and two only, in a space so small as to permit only thirty people to be seated at the same time.

In order to emphasize the facts above narrated, the food was served in portions containing a definite amount of nutrition, and the *menu* card on each table gave the requirement for one-quarter of one day's ration, with the weight and composition of each dish composing the meal. A choice of two or three luncheons, for which the price was thirty cents, was given each day, each containing three or four dishes, though an extra price was made for a glass of milk, for a cup of cocoa, tea or coffee.



RUMFORD KITCHEN INTERIOR, — A Second View.





RUMFORD KITCHEN, — Interior.





The results which go to testify that this exhibit was a recognized success are already apparent. The entire plant of the exhibit was put into the experimental kitchen of the Woman's Dormitories in connection with the University of Chicago, which is now in Miss Daniell's charge, and the work has attracted so much attention that not only has the great hospital for the insane at Kankakee, Ill., already secured the services of the manager of the Boston Kitchen, but the institutions and universities of our own State are coming to the kitchen as to headquarters.

I take pleasure in saying that the successful carrying out of the plan adopted is largely due to the interest taken in and the energy given to the Rumford Kitchen by its manager, Miss Maria Daniell of Boston, and by Mr. Arthur R. Wilmarth of Jamaica Plain.

I remain, very respectfully,

ELLEN H. RICHARDS.

*FINE ARTS.*

Preparatory to the collecting together of an exhibit for the Fine Arts Section in Chicago, the chief of this department, Mr. Halsey C. Ives, appointed in several cities of the United States advisory committees to co-operate with him in the selection of pictures which should best represent the work of the artists of these several localities. For Massachusetts, this committee consisted of Mr. J. J. Enneking, chairman; Mr. Edmund C. Tarbell, Mr. Thomas Allen, Mr. I. M. Gaugengigl, Mr. Daniel C. French, and Mr. Frederick P. Vinton, secretary.

Soon after their appointment, a conference was held between this committee and the Board of World's Fair Managers, from which time until the pictures were safely returned to their owners there was nothing but the heartiest co-operation between them.

Through the courtesy of the Massachusetts Charitable Mechanic Association there were placed at the disposal both of the committee and of the Board rooms within their building which were utilized by the Board for the reception of pictures sent from all parts of the State to be judged by the Advisory Committee.

The Board of World's Fair Managers deemed it wise that such pictures as should be selected to go

to Chicago as representative of the work of Massachusetts artists should be placed on exhibition, believing that the collection would be of interest to the citizens of the State, and that even from the small entrance fee charged enough revenue would be obtained to liquidate the expenses incident to the collection and exhibition of these works of art. For two weeks the rooms were visited from ten in the morning until ten in the evening by large numbers. The Board was able to send to the Treasurer of the Commonwealth a check for \$455.25, as representing the net revenue of the exhibition. At the close of the exhibition the pictures were removed to the basement of the building, where, under the superintendence of Mr. J. Eastman Chase, they were packed and loaded on board the cars for Chicago, arriving there in good condition within ten days of the date of their shipment.

Including oil paintings, water colors, sculpture, architectural drawings, and engravings and etchings, works of art to the number of about three hundred were sent to Chicago, of a total valuation of nearly \$140,000. From the time of their arrival in Chicago until the day when they were loaded upon the cars for their return, they were in the custody of the Exposition authorities, the Massachusetts Board of World's Fair Managers having during that period of time no jurisdiction over them whatever. Included in the list (Appendix C) of Massachusetts exhibitors to whom

were awarded diplomas and medals for their exhibits will be found the names of those artists and architects within the Commonwealth who received such commendation. The catalogue (Appendix D) showing the names of those who exhibited in Chicago, together with the titles of the works exhibited, includes a large number of those best known in the State.

The Board takes pleasure in adding to this preliminary report of theirs on the Department of Fine Arts the following paper, written by the well-known art critic, Mr. C. Howard Walker, which establishes the position which the Commonwealth occupied in this department:—

*MASSACHUSETTS IN THE DEPARTMENT OF FINE ARTS  
AT THE WORLD'S COLUMBIAN EXPOSITION.*

BY C. HOWARD WALKER.

The work of Massachusetts artisans and architects at the Columbian Exposition was by no means confined to the exhibit of fine arts accredited to the State.

From the first conception of the Exposition Massachusetts men contributed in each department of art, and the extent of their contribution and its importance can best be judged by citing the names of the artists and the extent and character of their work.

The general arrangement of the landscape gardening, the idea of taking advantage of the waters of the lake by introducing lagoons and the plan of the grounds was by Messrs. Ohnsted & Codman of Brookline, and was developed and carried to completion to a great extent by the late Mr. Cod-

man, to whose acknowledged skill much of the very successful effect of the grounds was due.

Of the architects of the principal buildings the following were either residents of Massachusetts or were natives of the State: Messrs. Peabody & Stearns, architects of Machinery Hall; Messrs. Van Brunt & Howe, architects of the Electricity Building; Mr. Charles B. Atwood, architect of the Fine Arts Building, of the Casino and Peristyle, the Terminal Station, the Forestry Building, and of the numerous bridges, kiosks and monumental columns; Mr. Sullivan, of Adler & Sullivan, architects of the Transportation Building; Mr. Henry Ives Cobb, architect of the Fisheries Building, and Miss Sophia Hayden, architect of the Woman's Building. Several of the smaller buildings, such as the Merchant Tailors' Building, by Mr. Atwood, and the Rhode Island Building, by Mr. Wilson, of Stone, Carpenter & Wilson, were also by Massachusetts men.

In sculpture the State was represented by the work of Mr. D. C. French, who was the sculptor of the statue of the Republic, and of the figures in the two groups in front of the main entrance to the Agricultural Building and in the quadriga above the arch of the Peristyle.

In decoration, Mr. F. D. Millet, who had charge of the decoration of the buildings, was a native of the State, as was Mr. Edward Simmons, who decorated one of the domes of the Liberal Arts Building.

In the exhibition of retrospective art Massachusetts was represented by such names as those of Allston, Hunt, Fuller, Foxcroft Cole, John Johnson. There were three Allstons, of which the "Danaë" was perhaps the most characteristic; three by Hunt, one of which was the "Niagara" and another the "Marguerite." The Fullers were an original study for the "Romany Girl" and the "Quadroon," the latter one of the best examples of Fuller's work.

*CONTEMPORARY ART. — OIL PAINTINGS.*

Total number in catalogue, . . . . .	1,154
Sent from Massachusetts, . . . . .	134

To those sent by the State should be added many paintings by Massachusetts men which appeared in the exhibits of Paris and New York. Amongst these were paintings by F. D. Millet, Metcalf, Walter Gay, E. L. Weeks, Swain Gifford, Childe Hassam, J. Appleton Brown, Theodore Robinson, Bicknell and Edward Simmons — in all forty-seven paintings.

In the contemporary exhibit there were pictures representative of most of the modern schools of painting, the influence of Paris, of Munich, of the Impressionists and of the Italian masters each being evident.

About one-third of the paintings were landscapes, in which was apparent a marked preference for quiet color and atmospheric effect. Among the landscapists were Charles Davis, who sent four canvases; Charles H. Hayden, represented by three scenes of New England pastures; Thomas Allen, whose "Moonrise" was one of the best examples of his work; Enneking, whose "October Twilight" was full of warmth of color; and Elwell, who sent a "Moonrise in Holland."

Marines were by W. E. Norton, who sent, among others, his "Return of the Herring Fleet;" A. H. Munsell, a painting entitled "Ship Ahead," and Walter Dean, whose "Peace" was a large canvas representing the white squadron.

Portraiture was exceptionally well represented by Benson's "Portrait in White" and "Girl with Red Shawl," the latter one of the frankest pieces of fine color handling in the Exposition; by Tarbell's "My Sister Lydia," very simply



and sweetly painted; by the excellent series of portraits by Vinton, and especially by his "Portrait of a Lady," which had already been accorded high rank at the Salon, and by DeCump's skilful "Carnation and Black." Of the remaining portraits those by Mrs. Perry of two children, one with violin and the other with 'cello, suggested the work of some of the sixteenth century Italians, and were painted with much poetic feeling. F. M. Freer, E. G. Niles, E. H. Barnard, Ernest L. Major, I. H. Caliga, W. W. Churchill, Jr., C. A. Cranch, Miss Putnam, Miss Klumpke, Miss Hallowell, Miss Fairchild, and Mrs. Whitman were each represented by portraits.

Of the paintings with figures, Miss M. L. Macomber's "Annunciation" and "Love Awakening Memory" had great merit, beautiful in color and composition and painted with skill; they were of exceptionally high rank.

Gaugengigl sent "The Rehearsal," "The Manuscript," "The Chanson d'Amour," each with much expression of motive and of character; Charles Sprague Pearce sent a "Village Funeral in Picardy," and Ernest Major a "St. Genevieve" of somewhat the same school. Tarbell's "In the Orchard" was one of the nearest approaches to impressionism in the Massachusetts exhibit, and was full of sunlight and plain air. Tompkins' "Good Friday" was in sharp contrast, dark and sombre, but simply painted. Stacey Tolman's "Etcher" was well studied in values of light and shade. Kronberg's "Behind the Footlights," of a dancer in scarlet and crimson, was a successful "*tour de force*."

There should be mention made also of Childe Hassam's suggestive views of Parisian and of New York streets, of Walter Gay's studies of monks and of Parisian charity schools, of Simmons' "Carpenter's Son," Metcalf's "Tunisian Market," Swain Gifford's landscapes, E. L. Weeks'



scenes in India, and F. D. Millet's excellent series of figure composition, such as "The Rook and Pigeon." Anthony Van Corlear's "The Trumpeter" and others.

There were but eleven water colors,—several by Thomas Allen, a landscape by C. F. Pierce, a "Winter Moonlight" by H. A. Hallett, a strong study of "Windswept Beaches" by E. C. Cabot, and several water colors by Ross Turner, his studies of Japanese pottery being especially skilful.

The four pastels by J. Appleton Brown were of great beauty.

Of the 490 black and whites, pen-and-ink and wash drawings upon the official catalogue, none were sent directly from Massachusetts, but 69 of those catalogued were by Massachusetts artists, and those were amongst the best in the exhibition. Of them the exceptionally fine series of pen drawings by C. D. Gibson, sent by "Life," deserves especial mention. Next to these the ten drawings by F. G. Attwood, also made for "Life," were full of humor and of the best qualities of the caricaturist. There were also drawings by F. D. Millet, F. O. Small, W. L. Taylor, and six pencil drawings by C. H. Woodbury, treated with great freedom and breadth.

#### ENGRAVINGS, ETCHINGS, ETC.

Total number in catalogue, . . . . .	627
Sent by Massachusetts, . . . . .	46

To these should be added six etchings by Swain Gifford and thirteen engravings by Elbridge Kingsley.

Closson had the largest exhibit of engravings, those after Rembrandt. Conture, Fuller and Thayer having especial refinement; Dana's landscapes, after J. Appleton Brown and F. Hopkinson Smith, were also excellent.

Wm. P. Cleaves sent a series of six New Hampshire views.

S. A. Schoff, a number of etchings and three engravings.

H. E. Sylvester, a series of engravings for the Century Company.

Charles A. Walker, a fine collection of reproductive etchings, after Daubigny, Corot, Dupré, Tryon, Maure and Meissonier.

#### SCULPTURE.

Total number in catalogue, . . . . .	148
Sent by Massachusetts, . . . . .	34

Of these the most important were the following: "Death and the Sculptor," by D. C. French, a very beautiful group, and the "Youthful Sophocles" and a "Hunting Nymph" by John Donoghue. Wm. Ordway Partridge contributed casts of the Shakespeare statue for Lincoln Park, Chicago, and of the Hamilton statue for the Hamilton Club, Brooklyn. Max Bachmann's "Son of Man" and Kitson's "Christ Crucified" and "Age of Stone" were the other statues sent. Smaller figures of merit were the "Young Orphans" and "On the Banks of the Oise," by Miss Ruggles (Mrs. Kitson); the "Music of the Sea," by H. H. Kitson; "Titania and Bottom," by F. G. Wesselhoeft. There were ideal heads by Miss Bradley, Miss Whitney, Mrs. Kitson, W. O. Partridge, and portrait busts by D. C. French, W. O. Partridge, Kitson, Bachmann and Miss Bradley.

#### ARCHITECTURAL DRAWINGS.

Total number in catalogue, . . . . .	268
Sent from Massachusetts, . . . . .	47

To these should be added two drawings by Shepley, Rutan & Coolidge, one by Herbert Everett, one by Peabody, Stearns & Furber and four by Walker & Kimball.

Of drawings of public buildings there were five of the Carnegie Music Hall, Pittsburgh, by Longfellow, Alden & Harlow, and one of the Cambridge City Hall, by the same firm; a design for an alteration of the old State House, Boston, by E. M. Wheelwright, and two drawings of the Public Library, Omaha, by Walker & Kimball, and the Art Institute at Chicago, by Shepley, Rutan & Coolidge.

The drawings of business buildings shown were those of the Equitable Building at Denver, by Andrews, Jaques & Rantoul; the Ames Building, Boston, by Shepley, Rutan & Coolidge, and the McCague Bank Building and the Nebraska Telephone Building, Omaha, by Walker & Kimball.

Church architecture was well represented by designs for St. Matthew's Cathedral, Dallas, Texas; All Saints' Church, Dorehester, Mass., and St. Paul's Church, Broekton, Mass., all by Crum, Wentworth & Goodhue; St. Augustine's Church, Boston, by Sturgis & Cabot, and the Mount Vernon Church, Boston, the Presbyterian Church, Omaha, and a design for the Walnut Street Church, Brookline, Mass., by Walker & Kimball.

Andrews, Jaques & Rantoul sent drawing of proposed Colorado College at Colorado Springs. H. Langford Warren sent designs for proposed Conservatory of Music for the Troy Female Seminary and views of the Troy Orphan Asylum. Sturgis & Cabot sent drawings of Rexleigh School, Salem, N. Y., and E. M. Wheelwright, design of the Hospital for Contagious Diseases and for the Shaw Memorial School, Boston. Peabody & Stearns contributed a frame of admirable office sketching and a drawing of Machinery Hall. J. C. Schweinfurth sent his competitive design for the New York Fine Arts Society Building.

House architecture was represented by designs by Andrews, Jaques & Rantoul; Longfellow, Alden & Harlow; Rotch & Tilden; J. C. Schweinfurth; H. Langford Warren; Wheel-

wright & Haven; Peabody, Stearns & Furber; Little, Brown & Moore and Walker & Kimball.

There were some excellent sketches of foreign architecture by Dwight Binney; by George F. Newton, two especially fine architectural water colors of the Colleoni statue, Venice, and of a *bas relief* at S. Maria dis Miracoli, Venice, by Joseph Lindon Smith.

The American architectural drawings throughout were of a different character from those received from abroad, the latter being in most cases careful scale drawings, rendered in line, with shadows cast; the English prospective drawings were very carefully done, and evidently had received more study than those of the United States.

The drawings from Massachusetts were in most instances perspectives in water color or in pen-and-ink, were often cleverly sketched, and bore comparison favorably with the remainder of the United States exhibit in architecture, but they were not as accurate, as carefully drawn, or as faithfully studied as the work from abroad. Most of the designs from Massachusetts were of semi-picturesque character, very little of it being along so-called academic lines.

In other buildings than the Art Building there were occasional exhibits of art from Massachusetts, — such, for instance, as the exhibition of architectural designs from the Massachusetts Institute of Technology, which was very satisfactory; the excellent exhibit of the School of Drawing and Painting of the Museum of Fine Arts, Boston, including work in oil and water color painting and in decoration. The public schools of the State showed their work in drawing, which was susceptible of improvement, though good as a whole. Of industrial art there were numerous exhibits, the principal ones being of iron and brass work by the Murdock Parlor Grate Company, and of colored *faïence* by Atwood & Grueby, and some excellent exhibits of china painting, pottery and wood carving.

In the Woman's Building a number of embroideries exhibited in the exceptionally fine exhibit of the Society of Associated Artists of New York were by Massachusetts women.

It will be seen from this report that of the thirteen important buildings of the Exposition, eight were designed by Massachusetts architects, or by natives of the State; that the Machinery Hall and Colonnade, Electricity Building, and Casino and Peristyle of the Court of Honor were due to the genius of men of this State, and that the general scheme of the Exposition grounds was conceived in Massachusetts.

Of the 2,802 numbers upon the official catalogue of the exhibit of fine arts 364 can be accredited to Massachusetts. The juries of acceptance were especially careful in making their selections, and it is due to this fact that the exhibit was not numerically stronger, fully sixty per cent. of the paintings, etc., entered being rejected. But it is also due to this fact that everything sent had merit.

*HORTICULTURE.*

The collection of an exhibit for the Horticultural Department in connection with the World's Columbian Exposition gave the Board of World's Fair Managers more anxiety than perhaps did any other exhibit over which they had control. This was due, in a large measure, to the lack of interest on the part of those who would naturally be expected to make contributions.

After repeated consultations with the members of the Horticultural Society, as well as with the representatives of the State Board of Agriculture, it was determined that no efforts should be made to display the fruits and vegetables of the Commonwealth, and that the Board would utilize only the space which had been set aside for it, both within the Horticultural Building and on the Wooded Island, to display its plants, its shrubs and its flowers. Upon arriving at this determination, the Board appointed Mr. J. H. Woodford as its agent to collect the plants which should be installed within the Horticultural Building, and gave over to Mr. Jacob W. Manning, the well-known nurseryman of Reading, the space assigned to the Commonwealth on the Wooded Island, within which to make an individual exhibit.

Through the generosity and public spirit of many citizens of the State owning private conservatories, Mr.

Woodford was enabled to bring together a collection of plants which did full credit to the space assigned to the Commonwealth. These plants were taken care of by the chief of the Department of Horticulture, at the expense of the Exposition, and at its end were, by the Massachusetts Board of World's Fair Managers, given to the Commissioners of the South Park of Chicago, as a contribution of the Commonwealth to ornament this, one of the many beautiful parks of that city.



*AGRICULTURE.*

Soon after their appointment the Massachusetts Board of World's Fair Managers had a conference with the State Board of Agriculture, from which time the Board was in constant consultation and co-operation with Mr. Francis H. Appleton, a member of the State Board. With him were made repeated visits to Amherst, where are erected the State Agricultural College and the Experiment Station, both of which were asked to lend their co-operation to the collecting together and final installation of an exhibit of such agricultural interests as should reflect the most credit upon the State.

When it became necessary to take action in collecting specimens of crops, the Board appointed as its agent Mr. John C. Dillon, a resident of Amherst, who had at one time been connected with the Agricultural College. Through the hearty co-operation which came to him from the president and professors of the Agricultural College, from the authorities of the Experiment Station, as well as from the farmers throughout the State, Mr. Dillon was enabled to collect an exhibit of crops which, with the aid of diagrams, charts and statistics, showed very satisfactorily the agricultural interests of the Commonwealth.

To this exhibit the Gypsy Moth Commission furnished a case, which, though small in dimensions, showed in a highly graphic manner the important work

accomplished by them. Within this case was a miniature tree upon which might be seen the worm of the gypsy moth, showing the leaves it fed upon, its method of destruction, and also the birds which are its enemies. This was an instructive lesson, and was in itself the justification for the expenditure which had been made by the Gypsy Moth Commission in their endeavors to wipe out this pest, and it cannot be doubted that the lessons which it taught were of value to the scientists of other States in that they saw the advantage which might be taken by them of the investigations and research already made by the Commonwealth and at its expense, if it should happen that their own States should become the home of the gypsy moth.

Such portion of the agricultural exhibit as originally came from the Agricultural College, together with specimens of crops which had been collected from different parts of the State, were returned to the college, while the contributions of the Experiment Station were sent to its officers. The exhibit of the Gypsy Moth Commission has by the Board of Managers been placed in the keeping of the State Board of Agriculture until such time as the Gypsy Moth Commission secures rooms of its own within which to place it.

A list of articles exhibited within this section appears in Appendix D, while the names of those to whom awards were made in the agricultural section of the Commonwealth will be found in Appendix C.

In calling attention to Mr. Dillon's report, annexed hereto, the Board desires to express its full appreciation of the co-operation which it at all times received from him and to thus place on record its hearty approval of the results attained through his energy and enthusiasm.

*Massachusetts Board of World's Fair Managers:—*

DEAR SIRs:—In obedience to your instructions, I beg to submit a report of my work in preparing and arranging the Massachusetts exhibit of farm crops, and what, so far as I am informed and believe, was the lesson which this exhibit taught and the end which it accomplished.

On receiving my appointment as your agent in August, 1892, I gave the matter my serious consideration, and after consulting many gentlemen of recognized judgment and experience I decided that to make a truly representative presentation of the crops of the State it would be desirable to enlist the sympathy and assistance of the agricultural societies and the granges of Patrons of Husbandry throughout the State.

I therefore prepared and mailed copies of Circular No. 1 (copy sent herewith) to the secretaries of all the agricultural societies, the lecturers of district granges, and to many other parties in the State. The responses I received were very cordial and encouraging, most of the secretaries sending me complimentary tickets to their exhibitions, and all promising to do what they could to further the objects of the Commission and to contribute to the credit of the State.

During the months of September and October I attended twenty-six agricultural fairs and solicited and secured the promise of many of the best specimens of farm crops. I

also obtained from the secretaries of those societies whose fairs I had been unable to attend lists of those who had taken premiums; and, by correspondence with these gentlemen, I secured the promise of many valuable contributions to the State exhibit.

The object I sought and measurably secured by these arrangements was to obtain a liberal supply of superior specimens for our exhibit, and to avoid incurring unnecessary expense by collecting inferior specimens or superfluous specimens, even though the quality of them might be all that could be desired.

In letters soliciting contributions I usually enclosed a copy of Circular No. 2 (also sent herewith), which saved me the labor of stating the general purposes of the Commission.

To secure compliance with the requirements of the chief of the Agricultural Department of the World's Columbian Exposition, I had printed and mailed three hundred copies each of Circulars No. 3 and No. 4. No. 3 contains a series of questions relating to the locality, ownership and cultivation of each specimen contributed, and No. 4 contains the same questions, with specimen answers to show contributors just what information it is desired that they should furnish. These data, when received, were digested and the substance of them copied on the description cards, No. 5 (sample herewith), which were then attached to the specimens for the information of committees and visitors at the World's Fair.

In conference with you, Secretary Sessions of the State Board, and Secretary Appleton of the Massachusetts Society for Promoting Agriculture, it was decided that it would be impossible to make a candid presentation of the agriculture of Massachusetts without acknowledging the growing importance of commercial fertilizers; and, therefore, permission was given to the Bowker Fertilizer Company and the Bradley

Fertilizer Company, the two principal fertilizer manufacturers in Massachusetts, to exhibit photographs of crops grown on these manures.

By your permission I hired a hall in Amherst for the reception and storage of specimens, and on the 19th of December the collection was inspected by yourself and Mr. Appleton, and by your instructions I prepared and sent to you a sketch of design for the arrangement of the exhibit at the World's Fair.

I was also instructed to obtain specimens of tobacco for the formation of a separate exhibit of leaf tobacco, and I accordingly secured a collection of a hundred samples of Havana and Connecticut seed-leaf tobacco grown in Massachusetts, which I deposited with Mr. C. A. Wilson of North Hadley, a practical grower, buyer and packer of tobacco, who kindly undertook to keep it in the best possible condition until it should be required for exhibition at the World's Fair.

It was arranged that the exhibit should comprise thirteen specimens of soils taken from different parts of the State; and, as Prof. W. P. Brooks of the Massachusetts Agricultural College was engaged in making collections of soils for other departments of the Exposition, I arranged with him to provide additional samples for the crop exhibit.

In March, 1893, under your direction, I packed and forwarded the specimens constituting the crop exhibit, and also the collections furnished by the Massachusetts Agricultural College and the Massachusetts and Hatch Experiment Stations in the forestry exhibit, and to the exhibit of agricultural colleges and experiment stations, to Chicago.

On the 15th of April I went with you and your assistants to Chicago, and found all the exhibits in my charge had arrived safely, and I saw to their delivery at their several destinations.

On account of the exceptionally bad weather, strikes of workmen and other hindrances, the contractors were somewhat behindhand in building the stall; but as soon as this was ready I furnished it with glass showcases and other fixtures; and, under your directions, I arranged and displayed the specimens I had collected and brought so as to present a plain but effective exhibition of the agricultural production of the State.

The stall itself consisted of an enclosure twenty-six by fifty-six feet, an area of 1,456 square feet, and was surrounded by a substantial wall, three feet high, composed of "staff," with massive pillars, five feet high, at each corner and at the main entrance, bearing the arms and motto of Massachusetts. This was painted a light gray or granite color, similar to that used on the outside of the Massachusetts State Building. On this broad outer wall were displayed twenty-six varieties of field corn, ranging from the small Early Flint to the largest varieties of Dent corn. These ears of corn were all of the most perfect types, and each one was nailed to the wall to prevent its being carried away; but so anxious were many of the visitors to obtain the seed that in spite of constant watchfulness it was again and again mutilated, and had to be replaced from the stock which had been kept to provide for emergencies. On each of the corner posts was displayed a bale of hay of different varieties of grass furnished by the Massachusetts Agricultural College, and inside each corner was a pyramid of corn on the stalk, ranging from the small sweet corn, three feet high, to the tall Southern White, showing a growth of fully sixteen feet.

Two upright glass cases at the main entrance contained exceptionally fine samples of corn and tobacco, and a row of glass centre cases, each sixteen feet long and filled with



superior samples of tobacco and field, sweet and pop corn and beans, extended east and west. Parallel with these and running down the middle of the stall were two tables on which were displayed the Bradley and Bowker collections of photographs of Massachusetts crops; and to show that these were no fancy pictures samples of the crops they represented, or of better ones, were arranged on the screen behind them. For instance, one picture showed a field of timothy yielding two and a half tons per acre, while close behind it was a sample of the crop which fully justified the claim. Another was a picture of twin ears of corn, and to show that this was no exaggeration, a dozen stalks were displayed on the screen, each bearing three or four perfect ears. The same arrangement was carried out in the case of pictures and specimens of potatoes, carrots, turnips, mangolds, onions and other articles of farm produce.

The centre of the stall was occupied by the beautiful case contributed by the Massachusetts State Board of Agriculture, and containing a tree infested by the gypsy moth and bearing on its branches life-like specimens of the birds which have been found to feed on the larvæ in their different stages of growth. This case attracted much admiration and curiosity, which to some extent I was enabled to gratify by the distribution of two large editions of the Report of the State Board of Agriculture on the work of exterminating the gypsy moth.

In the northeast section was erected a tall screen, sixteen feet long and ten feet high, on one side of which were displayed fine samples of corn, wheat, rye, barley, oats, buckwheat, Japanese and other millets, Brown corn, and a variety of cultivated and wild clovers and grasses. The other side was fitted with shelves, three of which were occupied by a display of a hundred specimens of



grains, beans and grass and other seeds, in half-gallon jars. The fourth or upper shelf supported a fine collection of feed-stuffs and fertilizing materials in handsome glass jars, contributed by the Massachusetts State Experiment Station. A row of thirty long, slim vials, each containing a specimen of some grass or forage plant, was secured around the base of the screen. This also was contributed by Dr. Goessmann, director of the Massachusetts Experiment Station. The panel above the shelves was devoted to a display of Indian corn, showing stalks bearing two, three and four ears, and also ears of field, sweet and pop corn arranged to show the numerous and striking varieties of this cereal to be found within the limits of a single State.

The remaining or northwest section was devoted to the display of potatoes, turnips, beets, carrots, parsnips, onions, squashes, pumpkins, cranberries, maple sugar and syrups, including also the thirteen boxes each containing a section of soil three feet deep taken from different places in the State.

The symmetry of the exhibit was somewhat interfered with by the six large columns of the building; but these were covered and made as ornamental as possible with specimens of grasses, millet, etc. The posts at the main entrance were also ornamented with a variety of herbage plants, and each was crowned with a basket filled with superior varieties of Indian corn, and surrounded by other varieties, handsomely traced, and substantially covering the baskets.

By favor of Mr. Sessions, I was furnished with statistics showing that Massachusetts ranks among the first ten States in both yield and value per acre of all the staple crops, except cotton and hay, and even in hay she ranks first in value per acre. These statistics I embodied in a little pamphlet (copy herewith), which was warmly praised and thankfully received by thousands of Massachusetts people and others,

who expressed their cordial approbation of these efforts to do justice to the capacity and resources of the Old Bay State.

While candidly acknowledging the general excellence of Massachusetts men and women and institutions, it seemed very much the fashion among our Western relatives to refer to Massachusetts and the other New England States as a sterile region, well adapted to foster the qualities of energy and ingenuity, a good place to be born in and to emigrate from, but in no way comparable for agricultural purposes with the broad, level and fertile lands of the Middle and Western States. In the Massachusetts exhibit of farm crops I have tried to give expression and confirmation of my own belief that Massachusetts can and does produce all the fruits of a temperate clime in as great perfection and abundance as any State in the Union, and while she does not claim that her soil will yield profitable returns under niggardly and slipshod management, her intelligent, liberal and skilful farmers, being surrounded by industrious and thrifty communities of manufacturers and merchants and scholars and professional men, obtain better pay for their labor than their Western brethren, whose profits are heavily tolled by the freight agent and the middleman.

The exhibit of the Agricultural College was very important and interesting. The forestry exhibit of Massachusetts was prepared under the direction of Prof. S. I. Maynard, and consists of forty-seven sections of trees native to the State, and cut, polished and finished so as to show the grain, colors and characteristics of the different varieties. The buildings and equipment of the college were represented by a collection of twenty-four photographs and maps. Some of these photographs represent the interiors of the buildings and are exceptionally fine. There are large maps of the college grounds showing the precise location of every noteworthy object. The Agricultural Department is represented

by a collection of samples of soils taken from different parts of the State, accompanied by the results of their chemical and mechanical analysis. The Veterinary Department sends its elastic model of a horse. The Horticultural Department consists of a glass case containing plaster-of-paris models of our common fruits and vegetables. These models are nicely painted and appear very life-like. In the same case are shown specimens of the wild and crude fruit, and also of the fruit in numerous stages of gradual development, as well as fine specimens of the leading varieties of to-day. There is a wooden model of President Clark's famous squash and the harness in which it lifted enormous weights. There are fifteen photographs of the college organizations, including the fraternities, the editorial boards of "Aggie Life" and the "Index," the glee club, fire brigade, military companies, band, orchestra and the athletic teams of 1892. The Hatch Experiment Station also contributed magnificent specimens of corn of several varieties, and a most valuable and interesting collection of Japanese millets, and beans brought from Japan by Prof. W. P. Brooks, the agriculturist of the station.

I have the honor to remain,

Very respectfully, your obedient servant,

JOHN C. DILLON.

*EDUCATION.*

The first step taken by the Board toward the collection of an exhibit which should worthily represent the educational features of the State was the calling of a meeting at their offices in the Sears Building, to which were invited the State Board of Education, the State agents and the superintendents of public schools throughout the Commonwealth. This meeting, presided over by Mrs. Alice Freeman Palmer, awakened a great deal of interest and resulted in the appointment by the Board of a committee of seven from among those who had been invited to be present, which committee was to have the superintendence of the exhibit under the supervision of the Board of World's Fair Managers. To this committee, consisting of Mr. Edwin P. Seaver, chairman, of Boston; Mr. Samuel T. Dutton, secretary, of Brookline; Mr. George E. Gay, Malden; Mr. Thomas M. Balliet, Springfield; Mr. Clarence E. Meleny, Somerville; Mr. William A. Mowry, Salem, and the Secretary of the State Board of Education, too great credit cannot be given for the industry, intelligence and interest shown in collecting the exhibit which finally went to Chicago as the representation of the Commonwealth in this all-important department.

This committee held weekly meetings at the office of the Board of Managers, a representative of which was

in almost every instance present to join in their deliberations.

The Board takes pleasure at this time in placing on record its thanks for the hearty co-operation which it at all times received from this committee, and in acknowledging the very great assistance which their individual labors brought to the Board.

After this committee had mapped out their general plan looking to the collecting of the exhibit and its installation, the Board of World's Fair Managers, at the suggestion of the committee, appointed Mr. George E. Gay of Malden as their agent to have charge of the collecting of the exhibit and to have superintendence of it during the continuance of the Exposition. To this work Mr. Gay brought a degree of industry and continued application such as is rarely seen, and to him should be given a full measure of praise for the excellent work accomplished during the year that the management of this exhibit was under his care.

The Board wish to call particular attention to two maps of the State, one showing the distribution of public schools within her borders, the other attesting to the fact that ninety-seven per cent of the population of the Commonwealth are happy in the possession of the privileges which come from the existence of a free public library in their midst. These two maps of enormous size were evidence in compact form of the widespread influence of education in the State of Massachusetts.

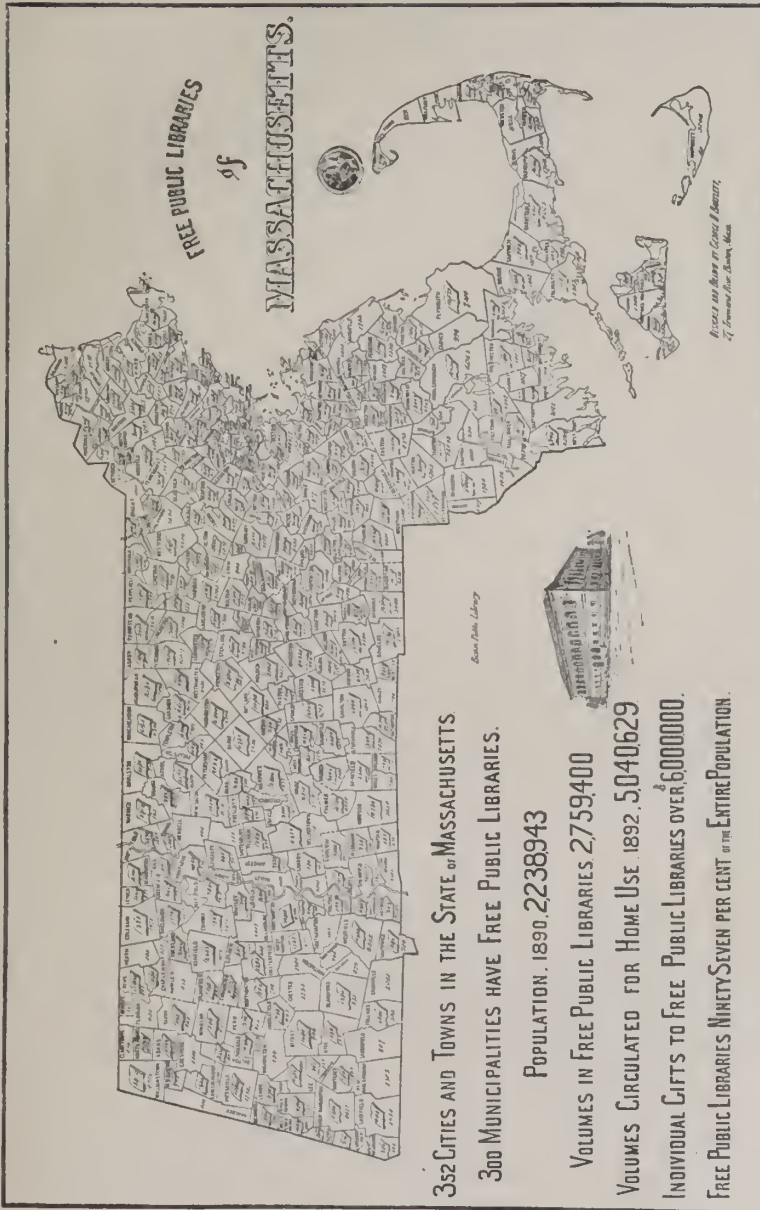




It is, perhaps, needless for the Board to call attention in detail to this exhibit, inasmuch as two very full reports of Mr. Gay are hereto annexed. Its members cannot, however, refrain from saying that there was perhaps no State exhibit in the department of education which was more highly commended and called forth more praise than did that of Massachusetts. The medals and awards made by the Bureau having supervision of such matters testify to the good opinion in which Massachusetts and her works were held in the minds of the committee which passed upon the exhibit of the Commonwealth.

The exhibit was the most complete and comprehensive which the Commonwealth has ever made, and reflected great credit upon it as well as upon its general educational system. In the same department, although, properly speaking, not State exhibits, were to be found those of the universities, colleges and technical schools of the State, and it is a pleasure for the Board of World's Fair Managers to be able to say that practically each one of these institutions of learning took advantage of the opportunity thus offered to place itself on exhibition. The presidents of these several institutions were invited by the Board of Managers to meet with them in their office to discuss the general question of an exhibit, and also to consider the question of distribution of space which had been assigned to the Commonwealth for exhibits of her institutions of higher





learning. This conference also served to awaken an interest among those present, as is perhaps evidenced by the statement that, with the exception of the Catholic colleges, which finally made their exhibits in the space allotted to the Catholic Church for its educational exhibit, and of one or two other institutions in the Commonwealth, each one of the many accepted the space allotted to it. The four colleges devoted to the instruction of women, — namely, Wellesley, Smith, Mount Holyoke, and that which is now called Radcliffe College, — were brought together in an alcove on one side of the main aisle running through the space allotted to Massachusetts for her educational exhibit, while directly opposite were to be seen the exhibits of Amherst, Tufts and Williams Colleges and Clark University. To Harvard University was assigned one-half of the space allotted to the Commonwealth for her exhibit in this department. Those who visited her exhibit had no doubt remaining in their minds that this distribution of space was proper, and that it was utilized to the best advantage by the officers of that corporation. It was, without doubt, the finest and most instructive exhibit ever made by any university in any international exposition.

Next to this and on either side of an aisle were the two courts allotted to and occupied by the Institute of Technology, within which was installed an exhibit which in a graphic manner laid before the visitor the courses

of study and the method of instruction in use in that institution.

In the Bureau of Education was the exhibit of the Catholic Church. The contributions from the Commonwealth to this collection were in no way under the jurisdiction of the Massachusetts Board of World's Fair Managers, who have had no connection either with the collecting or installing of such exhibits, nor any official information concerning them. As the schools, seminaries and colleges, however, within the State contributed to this unified exhibit of Catholic education, the Managers are glad to testify to the care, industry and intelligence with which this great exhibit was brought together. It was certainly deserving of the universal praise that it received, and the Managers are glad to believe that the awards which were granted to Catholic institutions within the State were well merited and worthily bestowed.

Two interesting features of the educational exhibit of Massachusetts were the contributions of two colleges located in foreign countries, — one in St. Sebastian, Spain, and the other in Constantinople, Turkey, — both being schools for the education of girls, and both being supported largely through the liberality of Massachusetts citizens.

In concluding this report having reference to the educational exhibit of Massachusetts, it may be safely said that it was well worth all the money expended upon

it and reflected great credit upon her schools and her colleges, once again emphasizing the great attention which in Massachusetts has always been and is still being given to education.

*PUBLIC SCHOOLS.*

*To the Massachusetts Board of World's Fair Managers :—*

DEAR SIRS:—I have the honor to submit herewith my report as Superintendent of the Massachusetts Public School Exhibit at the World's Columbian Exposition.

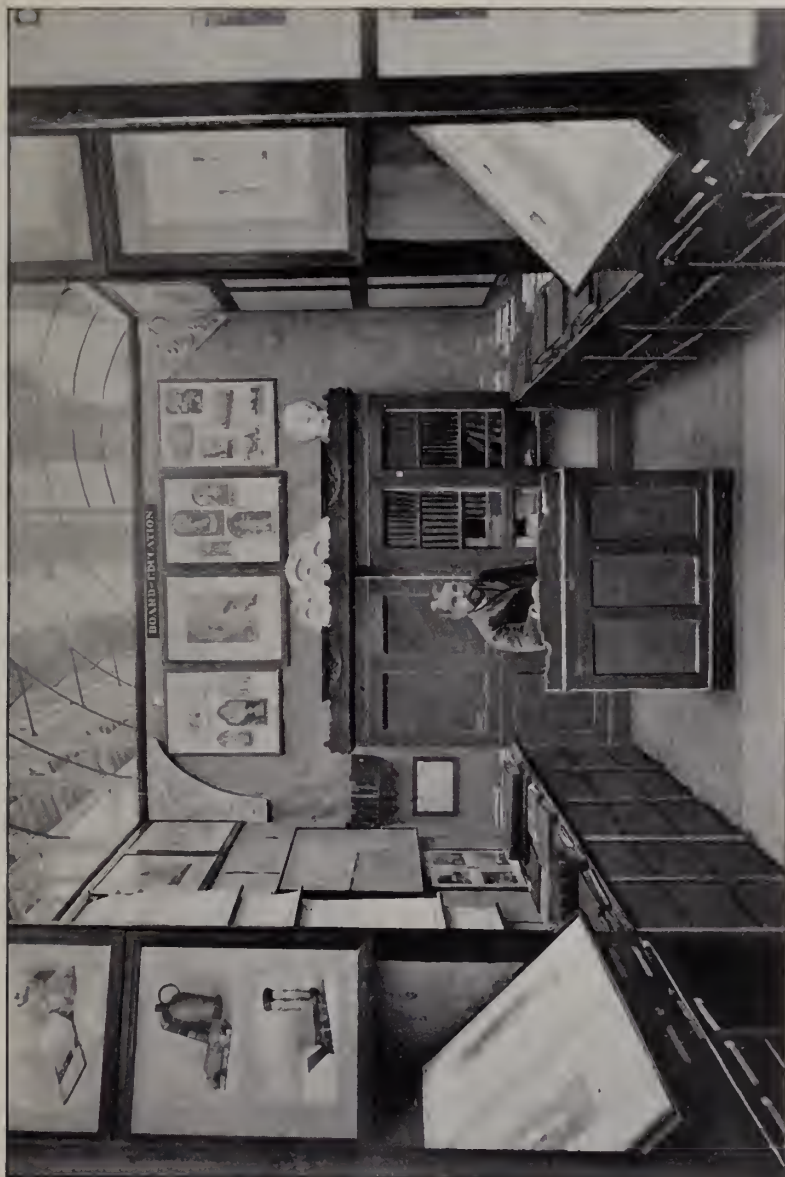
*PREPARATION OF THE EXHIBIT.*

The work of preparation for the Exposition was begun under your direction through the committee appointed by your Board.

This committee issued circulars to school committees, superintendents of schools and teachers, giving information concerning the display and making suggestions as to the character of the work desired and directions for its preparation and shipment.

I entered upon my work as Superintendent Dec. 26, 1893, and began at once to ascertain what cities and towns were intending to make displays of school work. I found the number smaller than I had anticipated and took steps to secure the interest of other places.

The material for the exhibit was sent to Boston at the expense of the cities and towns contributing, and was stored until it was shipped to Chicago. Most of this material was ready for exhibition. The written work of pupils was in bound volumes, portfolios and showcases. Manual training work was mounted upon boards of uniform size ready to hang upon the walls. Apparatus, natural history specimens, geo-



MASSACHUSETTS PUBLIC SCHOOL EXHIBIT, — Office.





graphical illustrations, etc., were received in a form suitable for examination. Most of the drawing was sent unmounted. I am under great obligations to Mr. Henry T. Bailey and Mr. L. W. Sargent for assistance in mounting and preparing the exhibits in drawing, and to the school committee of Boston for the use of a room in the basement of the Latin School, where the final arrangements for shipping were made.

The work received for exhibition came from the Board of Education, from all the State normal schools, and from forty-eight cities and towns of the State.

Great delay on the part of the Exposition officers in determining how much space was to be allowed the State for her education exhibit destroyed the enthusiasm with which the first announcement of the Exposition authorities had been met, and the amount of material received was considerably less than might easily have been displayed.

#### *INSTALLATION OF THE EXHIBIT.*

The material for the exhibit reached Chicago on April 15, and was installed and ready for examination on May 1. The form of its installation gave rise to many questions. The original plan of the chief of the Department of Liberal Arts contemplated an arrangement by States in grades on the following general plan:—

The educational exhibit will be organized both by States and by grades. Each State will occupy a definite area which will be assigned with reference to the elements which the several States will have to represent as nearly as that can be ascertained. These areas will be side by side in parallel subdivisions extending north and south. The arrangement of the elements in the several States will be expected to conform to a general plan presenting the several grades in consecutive arrangements extending east and west. The studious observer may follow



the grades from the most elementary to the most advanced in any State, or crossing the areas he may trace the similarities or variations in any chosen grade.

In the presentation of public school systems the several States and Territories will be the smallest units for which separate provision can be made by the chief of the department. Cities, villages and rural schools will find such recognition and representation as can be allowed within the limits assigned to the States which include them.

The following sketch illustrates this plan:—

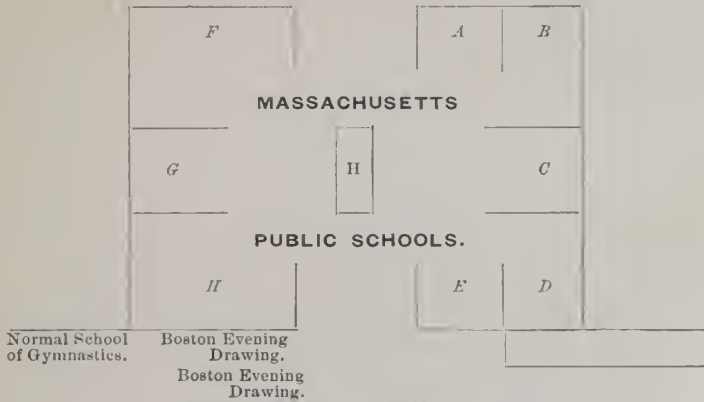
KINDERGARTEN.	PRIMARY.	GRAMMAR.	HIGH.	NORMAL.	
					MASSACHUSETTS.
					CONNECTICUT.
					RHODE ISLAND.
					VERMONT.
					MAINE.
					NEW HAMPSHIRE.

It was finally and most unfortunately found impossible to carry this plan into execution, and the various States were assigned places in the south gallery of the Manu-

factures and Liberal Arts Building, and the cross aisles separating grades were abandoned. In several States the arrangement by grades was abandoned and other methods of classification adopted. Some States adopted a classification by cities and counties; others arranged their work by subjects. Some States combined one or both of these methods with classification by grades; some separated the work of graded schools from the work of ungraded schools, and some had little classification that was apparent.

The plan of arrangement which was used for the Massachusetts display is shown below. This arrangement proved to be most satisfactory to those who wished to study the exhibit with a view to ascertaining the character of Massachusetts school work and learning the lesson which it taught. It was not so acceptable to those who wished to compare the entire work of one city with the work of other cities, or to those who wished to see the work of one city only.

PLAN OF MASSACHUSETTS PUBLIC SCHOOL EXHIBIT.



It will be seen that the exhibit was divided into six departments, as follows: Kindergarten department, primary

department, grammar school department, high school department and the department devoted to the Board of Education. The walls separating the departments were ten and one-half feet high, and were used to display drawing, manual training products, photographs and sample pages of the written work of the pupils. The casts in the centre of the main aisle were from the Normal Art School.

The kindergarten department contained kindergarten gifts and materials, with tables and chairs kindly loaned by Milton Bradley & Co. The walls were covered with pupils' kindergarten exercises, and portfolios contained the overflow. In the primary room, the wall display included the State primary course in drawing, with other drawing, and Superintendent Davis' presentation of his method of teaching primary reading. Portfolios contained additional work in drawing. In showcases only was clay work to be found, while bound volumes held pupils' work in number, form, color, language and nature study, with pictures of teachers and pupils engaged in their work.

The arrangement of the grammar school room was similar to that of the primary room. Drawing, methodically arranged, covered the walls; bookcases were filled with bound volumes of pupils' work; showcases contained a great variety of materials used by teachers for purposes of instruction, or made by pupils in the course of school work. One alcove of the grammar school department was devoted to manual training and sewing. A portion of the sewing was crowded out of this room by lack of space, but was shown in the high school department. Another alcove of the grammar school department was devoted to drawing and photographs.

The high school department contained the work of high schools, while the normal school department displayed that of normal schools, together with photographs, plans of



MASSACHUSETTS PUBLIC SCHOOL EXHIBIT, — Central Aisle.



school buildings, drawing and sample pages from bound volumes.

The department of the Board of Education contained the work sent by the Board, pamphlets for distribution, albums of photographs and the choicest bound volumes. This room was used as the office of the Superintendent. The outer walls of several departments contained work from the evening drawing schools of Boston, Worcester and Waltham.

#### *CHARACTER OF THE EXHIBIT.*

The school exhibit of the State of Massachusetts was complete in the sense that it exhibited work of every kind done in the public and normal schools of the State, from the rude attempts of the little children in the kindergarten to the fine display of the Normal Art School. From the first beginning of scholastic education in the primary grades to the work of pupils just taking their college examinations, every phase of school life was shown. The exhibit was incomplete in the sense that it did not represent the work of the entire State. Of the two hundred and fifty-two cities and towns, only forty sent work which gave a picture of the school system in operation, and many of these exhibits showed only partially the work that is done. This condition is offset, however, by the fact that cities and towns of every size and schools of every grade and character were shown, so that while the picture is not complete, it is true and satisfactory.

The contribution from the Board of Education gave a good view of the work which this body does, and the character of the school system of the State of Massachusetts, the distinctive feature of which is the control of the public schools by local committees. So far as relates to the choice of teachers, methods of teaching and



courses of study, the local committees are supreme, and from this fact arises the greatest possible diversity in subjects of study and methods of teaching. The system has its advantages, which are apparent wherever it is contrasted with that of States having a course of study under a strong central authority. Committees and teachers are continually making experiments to lead to no good result. Pupils moving from one city or town to another are placed at great disadvantage because of the different studies pursued in different places. On the other hand, the advantages of the system are seen in the wonderful activity of teachers and school officials, in the multitude of original investigations which are made in every portion of the State, in the emulation which exists between different communities, and in the constant effort to secure for the local organization all that is best in modern appliances and modern methods.

The exhibit of the Board included a complete series of its annual reports from 1838 to 1892. These reports are much more than tabulated statements of attendance and expenditures and records of the extension of the public school system. They form a history of education in this country, so far as progress has been made in subjects of study and methods of instruction. The great questions of organization and discipline, of the means and ends of public school education, are here discussed by the foremost thinkers of the State, and no other educational documents in the country are of greater interest and of greater historical value.

A series of maps gives the location of training schools and classes maintained by the various cities and towns throughout the State to supplement the normal school instruction, the places at which teachers' institutes have been held during three successive years, expenses incurred by

the various cities and towns in the transportation of pupils to and from school, and the location of cities and towns which have local superintendence. Incidentally, the last map exhibits the extent to which the system of local superintendence has reached, and prophesies that within a few years the entire teaching force of the State will be under the direction of skilled local superintendents.

Statistics of attendance and expenditure, of the preparation of teachers for their work, of comparative wages, of teachers of the different sexes and the absolute amount paid, the attendance in evening schools, the increasing expenditures for public schools, the average membership in public schools, the average attendance in public schools, important dates in the history of the public school system, and the extent of supervision, text-books and supplies, the conveyance of pupils to and from school, were shown in a series of charts in a graphical and forcible manner.

Two large portfolios contained the administrative forms used by the school committees and school superintendents throughout the State, and formed a suggestive and helpful exhibition of the fertility of the minds of school authorities, and the care and time devoted to securing the best possible execution of the laws and rules governing the schools of the State. A large map showed, as well as a map can show, the location of the common schools of the State. Its one distinctive lesson was that every portion of the State is covered with school houses and that every child within its borders may receive at least the elements of a good education. Another large map showed the location and the number of free public libraries in the State. Its principal lesson was the fact that ninety-seven per cent. of the population of the State have access to a free public library within the limits of their own municipality.

Pamphlets for public distribution gave a detailed account

of the Massachusetts school system and its principal historical features. These included: Public statutes of the State relating to public instruction, with annotations and explanations; an Historical Sketch of the Growth of the Massachusetts Public School System; a descriptive sketch of its salient features; a descriptive sketch of Teachers' Training Schools and Classes; an account of the recent movement to promote nature study in public schools; an account of the movement to provide free transportation for pupils when it is advisable to discontinue rural schools; an historical account of instruction in drawing and music in the public schools of the State; a report of the Free Public Library Commission of the State; copies of the course of study recommended for use in the common schools of the State; and an historical account of the normal schools.

Closely connected with the exhibit of the Board of Education was the exhibit of the State normal schools. This exhibit showed by the use of photographs the means of instruction provided in the five normal schools of the State. By specimens of the pupils' work it showed the character of the work secured, and by charts and other methods it showed the courses of study pursued and the methods of instruction adopted. The normal schools of Massachusetts are organized upon the following plan: The work of the schools is twofold, — first, purely professional instruction, namely, instruction in educational psychology, in the principles of education, and in the best methods of instruction and their historical development; second, the presentation and study of various branches of human learning with a view to ascertaining the best methods of teaching these branches — that is, various branches of study pursued in the public schools are reviewed and studied in the normal schools, but always with the purpose of ascertaining the best method of presenting these studies to pupils, the normal pupils thereby acquiring a fresh

knowledge of the subjects investigated, together with a knowledge of good methods of teaching the branches. All but one of these schools provide opportunities for pupils to put into practice to some extent the principles and methods which they learn in their studies, the practice school forming an important and essential portion of the normal school.

Of the various cities and towns contributing to the exhibit, Boston was by far the most prominent. It showed work of every character done in the public schools of the city, over a hundred different subjects in all being illustrated, and gave work from every school room and laboratory in the city. Portfolios, books and walls were devoted to this display. Photographs alone occupied twenty-five large albums and gave a truthful representation of the means of instruction afforded by that city. All the usual subjects of instruction were illustrated fully, and so related to the course of study and accomplished by such full explanations of the methods of instruction and the conditions under which the work of the pupils was done that one was able to study the exhibit with ease and satisfaction. The display in drawing covered the entire field from Mrs. Cutler's course in primary form and color work to the elaborate work of the evening drawing schools, and was the most complete and excellent of its kind in the public school exhibits of the country. The illustrations in the volume of pupils' work were full and excellent in books devoted to scientific studies, especially in the high school department, but the ordinary work of the grammar and primary grades did not contain the same amount of illustration that appeared in the work of some of the other cities of the State. The exhibit in the various departments of manual training in Boston was very full and was excellent in every particular. Photographs showed clearly the conditions under which this work was done and the illustrative work of pupils showed the courses of study and the character of the

work secured from pupils. In sewing, the entire course of study was shown by numerous examples of pupils' work in several large albums, and a number of show-cases contained completed garments. Photographs showed the pupils at work, with entire classes dressed in clothing which they had made with their own hands. The work in sewing was developed in general along sloyd principles; that is, every process taught is applied at once in the making of some completed article.

In woodwork, we had the three systems now in use in the Boston grammar schools, the so-called Eliot School course, as arranged by Mr. Leavitt; the course in sloyd, as arranged by Mr. Larsson, and the course arranged by Mr. Eddy. The work in each of these three exhibits showed most careful thought and experiment on the part of their promoters, and the fact that the three courses are in use side by side indicates the determination of the city to solve by long-continued experiment the problem of the best form of manual training for common schools. What the outcome will be is uncertain. It seems to me, however, that the course of Mr. Larsson, either in its present or in some modified form, is likely to become the standard system of the country for grammar schools. Whether the principles of sloyd can wisely be carried to schools of higher grade is an open question, as is also the general question of what models to employ and in what order to introduce them.

Some of the special exhibits of Boston may be described briefly as follows: Work in kindergarten was characterized by the delicacy of color employed in the materials used by the children and the wonderful perfection of the children's work. Clay modelling was of a high degree of excellence. The work in the English language, from the lowest primary to the last year in the high school, was of





MASSACHUSETTS PUBLIC SCHOOL EXHIBIT, — Grammar School Section.





exceptional interest and importance. The exhibit showed that Boston's reputation for good work in this subject is well founded, and the prefaces of the teachers explaining their methods of teaching the subjects form an educational treatise of remarkable value.

The character of the penmanship in this exhibit was similar to that of most cities. The form of letters used as copies was that of the well-known Spencerian style. There was an absence of shading and the effect in the best specimens was pleasant to the eye and the work was legible when the ink was of good quality. On the other hand, it was evidently written with great painstaking and very slowly, and the problem of beautiful, legible, rapid writing seems not to have been solved in all schools.

The distinguishing characteristic of the Boston drawing was the large number of original designs. The divisions of elementary drawing which have now become common,—namely, mechanical, decorative and illustrative,—seems not to be carried on in unison throughout the entire grammar school course. One of the results of this Exposition will be to secure, on the part of teachers of drawing in all parts of the country, greater attention to pictorial drawing. This should not be used to the exclusion of design and geometrical drawing; the three should go hand in hand.

A relief map of North America made from a newspaper which had been soaked in warm water was the best relief map in the exhibit. The work in relief maps in the public schools should be confined to rather narrow limits and should be made in all cases as correct as possible in elevation and boundaries. In the production of these maps contour maps should be used as far as possible and the method adopted by professional makers of relief maps is probably the best. One large, accurate, beautiful map, in the making of which all the pupils in the room had

a part, will prove of much greater value than many patches in putty and pulp. A good relief map of the State of Massachusetts should be placed in every school room. Wherever possible, pupils in the room should make the map from the contour maps published by the government. Where this is impracticable, the city or the State should furnish a good map of this character. From this may be taught, better than from any other source, a host of facts pertaining to the drainage of the State, the character of its productions, the varieties of its climate and the historical development of its manufactures and commerce.

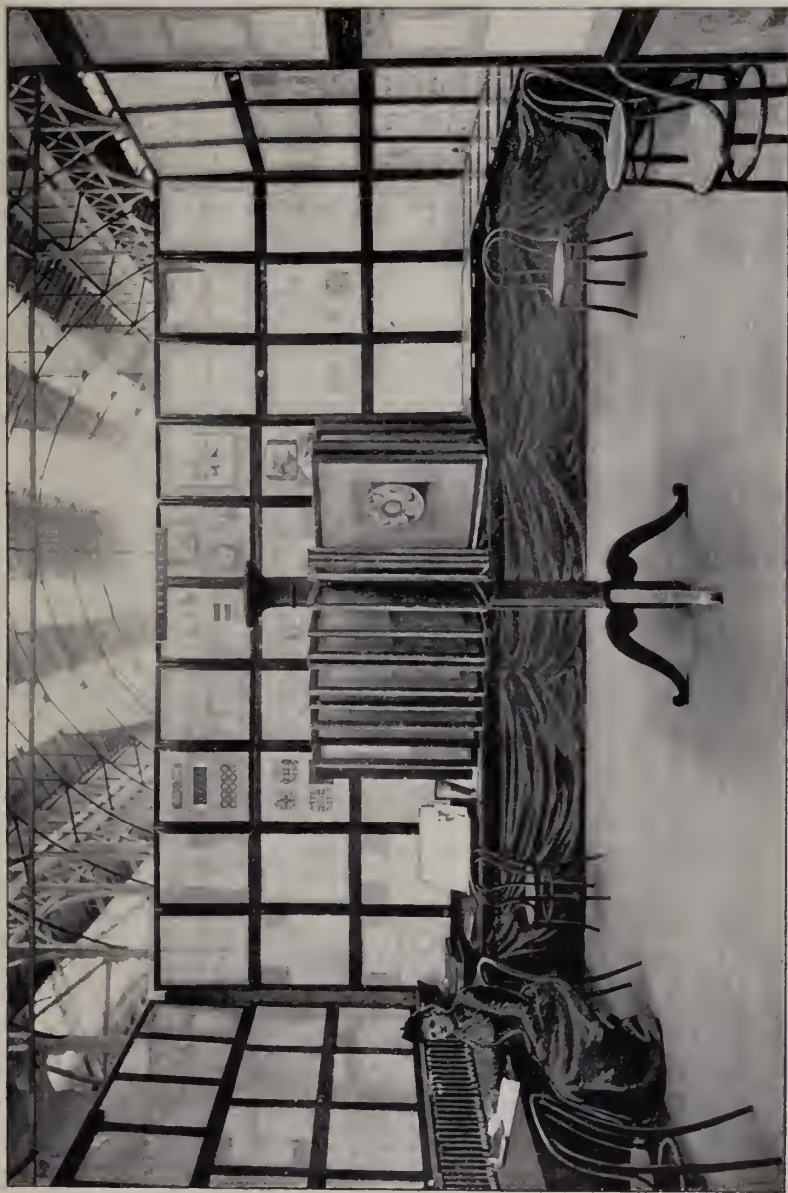
The exhibit of the normal school of Boston showed very fully the character of the work done in this institution. The school has an honorable history and it has had great influence in maintaining and improving the character of instruction in the schools of the city.

From the Girls' High School came a volume of rare value, a description of the art collections of this school and a catalogue of its libraries.

The Horace Mann School for the Deaf sent papers in geography, history, arithmetic, physiology and English that would do credit to pupils whose senses are normal, with sloyd work of a very high degree of excellence.

The views of the Mechanic Arts High School, opened this fall in Boston, showed the accommodations which Boston has prepared for a manual training high school. A remarkable fact connected with this high school is the number of pupils who have applied for admission at its opening session. Nearly as many pupils have applied for admission to its lowest class as the entire building is capable of accommodating. The result is that the city has at once made preparations for building an additional school of the same character.

A distinctively Boston institution is the military organiza-



MASSACHUSETTS PUBLIC SCHOOL EXHIBIT,—High School Section.



tion maintained by its high schools. The boys of the various high schools form one regiment, commanded by officers selected from their number. Each of the schools is organized as a battalion, with several companies, varying according to the number of students. This military organization has been maintained for a long time and is popular with the pupils and with the community. The instruction in military science is in the hands of a special director, who devotes his entire time to the work.

The five school papers published by five of the Boston high schools formed an interesting portion of the Boston exhibit. These papers are published and edited by the pupils of the various schools and reflect credit upon their managers.

Next in importance to the exhibit from Boston stood the exhibit of the city of Springfield. This exhibit did not aim to give a complete picture of the school work of the city. It rather aimed to show the lines of work to which the school authorities have given special attention in recent years. In general these subjects are arithmetic, drawing, manual training, music and writing. The work in primary arithmetic was unique in various particulars. Perhaps it may be best characterized by saying that it is based upon form study and elementary geometry. It is closely co-ordinated with drawing and with English. According to this plan mensuration begins in the lowest grades and is continued through the entire course. The area of surfaces and the contents of solids are discussed and measured in grades several years lower than is the custom in other cities. All the work in arithmetic was very fully and carefully illustrated, and no portion of the Massachusetts exhibit was more carefully studied than this. It gave evidence of most careful thought and experiment, and some of the results exhibited were surprising.

Drawing was shown by two collections of charts giving an epitome of the course, and by large portfolios giving many



examples taken from the work of pupils in primary and grammar grades. These were systematically arranged and afforded an excellent opportunity to study the course as outlined by the director of drawing. No more systematic work was shown in the exhibit. A special feature of the work was the excellence of its object drawing. Another important feature was its correlation with the work in the high school. For example, an important portion of the high school drawing consists in illustrating the work done in biology, physics and chemistry. The drawing of the lower grades looks forward to this work and prepares for it. The high school drawing was shown only in its application to science work, but these applications had a very high degree of merit. A feature of this work which has attracted very marked attention was the color work in botany and zoölogy. This work was done in water colors and was of such excellence that it could well be used as charts for instruction in those branches in the lower grades of schools.

Springfield furnished the only elaborate exhibit in music in the Massachusetts department. This exhibit consisted of the written exercises of pupils. These exercises contained music written by the pupils from dictation, written examinations in music, and music written to express what the pupils have heard sung or played. The teacher sings or plays in the presence of the pupils and they write the music which they hear. This exhibit received much attention.

The work in manual training included work for every grade from the kindergarten to the last year of the high school. It consisted of work in paper, clay, wood and iron, and the scheme was so arranged as to form a connected whole. The paper modelling and the clay modelling are closely connected with instruction in drawing. The work in paper folding and other kindergarten exercises is followed by simple wood carving and other forms of knife work, and



MASSACHUSETTS PUBLIC SCHOOL EXHIBIT, — Normal School Section.



that leads to Mr. Kilbon's well-known course of manual training in wood and iron. This work was shown in large frames by carefully numbered models and the proper explanatory legends. Mr. Kilbon's course, as is well known, is not the usual Russian form of manual training. It is, however, remarkably systematic, and the results secured under his efficient instruction are such as to commend his system.

The work in penmanship from the Springfield public schools was more extensive than any other similar exhibit from the State. The form of letters is the usual Spencerian form, and shading is taught from the first. Instruction in form is combined with a great variety of movement exercises. These exercises were an important portion of the work and a very striking feature of the exhibit. The results secured show a style of handwriting which is not different in character from that taught in business schools. The selected specimens of high school pupils' work showed a degree of facility in pen work that was unexcelled in any exhibit in the building, save in the exhibit of commercial schools.

The high school exhibit was confined principally to work in science. The work in this line was of a very high character.

The exhibit from the Springfield training school showed the course of study and methods of training employed in this school. Its efficiency is due in a great degree to the skill and devotion of its principal, Miss Read, and the volume was a satisfactory exhibition of its work.

Adams sent seven bound volumes of pupils' work, two from the grammar schools and five from the high school. The general character of this work was good and reflected credit upon the superintendent and teachers. A pamphlet gave the organization and rules of the training school.

Braintree showed work of all grades in four bound volumes. The volumes had evidently been prepared with a good deal

of care. The general impression which one received from them was that the work in the lower grades has not reached the degree of excellence common in the upper grades.

Brockton made a small exhibit, showing only drawing and arithmetic. The drawings were good and the work in arithmetic was of such a character as to make one wish the exhibit were larger.

Brookline furnished an accurate picture of the work done in her public schools. The conditions for school work there are remarkably favorable. The town is so wealthy that it can devote to its public schools a large sum of money without taxing itself to the same extent that other communities must do to secure a meagre sum for schools. As a result, a great amount of money has been spent during the last decade in the building and furnishing of school houses and in securing the best available superintendent and teachers. The first characteristic which struck one in examining the Brookline work is its comprehensiveness. A list of subjects taught to pupils of common school age includes all the ordinary common school branches, and drawing, English literature, zoölogy, botany, domestic economy, sewing, work in wood and iron, mineralogy, physics and chemistry.

The appliances for teaching these subjects were complete in every particular. Workshops, kitchens and sewing rooms are provided freely, and no effort is spared to make the work of school life a complete epitome of all that a child should learn, as well as a means of training mind and body to a high degree of power. The work shown illustrated all the features of this very comprehensive system. Photographs gave pictures of school houses, school rooms and school appliances. Notable among the last were the art treasures contributed by Mr. William H. Lincoln, for many years a most efficient member of the school committee. The written work of pupils covered nearly all the subjects contained in

the course of study. Some of the work which received the most attention was the work in domestic economy, in the natural sciences and in sewing. It is unusual to read in the ordinary school work of grammar school children how to dust a room, how to sweep a floor and how to wash a sink, but who shall say that these are not as important information as how many cities there are upon the Erie Canal or how long the River Lena is? A remarkable book was devoted to sewing. Here the pupil writes clearly a description of what she proposes to do, illustrates her composition with an appropriate drawing, and then does the work which she has described. This work was attached to the composition and this threefold representation was exhibited as a unit.

Brookline is one of the few places in Massachusetts which furnish free public kindergartens, and the work of its kindergartens was shown in frames, upon the wall and in a portfolio. The work consisted of the usual work of kindergartens, paper folding, weaving, etc., and a few special exercises designed for wall decoration on special days. There were also shown several cases of collections of natural objects made by pupils and teachers, and designed to illustrate the work in geography and natural history. These cases gave rise to the suggestion that printers' cases are well adapted to collections of this character.

Chelsea showed drawing and work in English for primary and grammar schools, with high school work in nearly all branches taught in New England high schools. The work in English was distinguished by several peculiarities. The most prominent of these appeared in the exhibition of Mr. Davis' method of teaching reading, known as the "thought method." By a series of photographs of classes, and printed explanations beneath them, he showed very satisfactorily its principal characteristics. Some of the prominent features of this system are : first, the thought always precedes the expression ; second,



all reading from printed text-books is sight reading; third, in oral reading the pupil looks at his teacher and not at his book, and the exercises resemble a conversation lesson more than an ordinary reading lesson. This exhibit attracted a good deal of attention on the part of educators from all parts of the United States and from foreign countries.

A characteristic of the grammar school exhibit in English was the large amount of memorized gems of English literature. This feature is a pleasant one for the pupils, and its results must be beneficial on their vocabulary and forms of expression.

The course in drawing was shown in full, and conformed in general to the outlines of the State course. The work shown was good.

A distinguishing feature of the work from the high school was the written translations of Greek and Latin read in school. Every pupil, it seems, is required as a part of his work to make complete written translation of all the Greek and Latin which he reads.

Concord furnished an album of photographs giving pictures of its school houses, school rooms and school appliances. Its most striking feature was in its representation of the teams by which pupils are conveyed from rural districts to the central schools, the system of centralization of pupils being characteristic of the school system in this town.

Everett, in eleven bound volumes, sent samples of its school work in all subjects and grades. The character of this work was uniformly good and some of it was excellent. There was evidence of faithful and wise superintendence and a general advance along all lines of school work.

Fairhaven, in two bound volumes, sent school work of all grades. The work was interesting and suggestive of good methods of instruction. Fairhaven also sent copies of its school report for distribution, and these were taken away

by visitors to the exhibit as representative of a good Massachusetts town school report.

Fall River sent, in large, well-bound volumes, samples of its work in drawing, English and arithmetic; and, in frames, models to illustrate the course in manual training in the B. M. C. Durfee High School. It also furnished photographs of its school buildings and classes. The work was uniformly good. The photographs of the B. M. C. Durfee High School gave a good idea of the school building, and suggested the character of the work done within its walls. A printed volume gave a history and description of this building.

Hingham, in fourteen bound volumes, made a good display of the work done in all of its schools. The most characteristic feature of her exhibit is the attention which it gives to science work, and particularly to nature study in the lower grades. The amount and character of the work shown in this branch indicated great enthusiasm on the part of the superintendent and teachers. The high school work was good and suggestive of excellent methods.

Holyoke made no general display of its school work, but exhibited some of its features in a highly attractive way. The drawing was excellent, particularly the model and object drawing and historic ornament from pupils of the high school. Its work in penmanship was excellent in character and showed the most training in this branch of study. A volume of manuscript written and illustrated by pupils in the public schools was a work of great excellence and attracted much attention. Holyoke furnished a number of relief maps made from putty and pulp. These were painted to represent elevation and were suggestive of possibilities in this kind of work which are not often secured. A volume gave a record of the history and course of study of the normal training school of the city. This school is considered by many observers to be one of

the best of its kind in the State. A series of historical charts prepared by the pupils of one of the grammar schools to illustrate lessons in history was unique in character and of value to teachers who examined it.

Lawrence showed the character of its school work in nine large bound volumes, covering all the branches of study taught in its schools. This work was of good quality and the methods illustrated were worthy of attention.

Malden furnished two bound volumes of high school work and a case of chemical products from the high school laboratory. The volume on physics gave the method of instruction pursued in this study and sufficient pupils' work to indicate its general character. The method of instruction is adapted to the conditions under which it is given and the results were very satisfactory. Some of the illustrative drawings were unusually well executed. The work in chemistry likewise had great excellence. Original laboratory note books, in the solution of chemical problems and the determination of unknowns in qualitative analysis, were of excellent character. The organization and plan of work in the normal training school of this city were also shown. The work of this school was laid out in a manner worthy of study. A pamphlet by the superintendent of schools showed the method of promotion employed in this city, whereby rapid promotion of bright pupils is made easy. This method is believed to be unique and very successful in practice.

Pittsfield showed drawing of all grades and of excellent character, a bound volume of language work in the grammar grades, a case of construction work in clay and paper, and a very elaborate and artistic herbarium of native flowers. The method of mounting and the excellence of the work attracted much attention.

Quincy showed drawing, construction work and the usual studies of primary, grammar and high school. The work

of this city has been much sought after by visitors on account of the reputation of the so-called "Quincy methods." These methods have, however, been so much modified as to differ essentially from the methods which took this title under the direction of Colonel Parker. The methods now used in this city do not in general differ from those used in other cities of Massachusetts under the direction of skilful superintendence. The work was excellent in every line, and worthy of the study which it received. This was particularly true in the nature study, which was exhibited very fully and in some particulars more completely than that of any other city. The drawing of Quincy was also notable. It formed a large part of the State course as illustrated upon the walls of the Massachusetts exhibit, and filled several portfolios, besides occupying a large portion of one of the winged frames. The work was carefully graded and well executed.

Salem furnished us with thirty volumes of pupils' exercises, elegantly bound in half calf. These volumes were in general of two kinds: one kind containing annual examinations; the other illustrative lessons. The work of Salem differed from that of most of the work shown in the Massachusetts exhibit in the fact that it showed the work of entire classes alone, no selected work having been sent. This, of course, detracted from the appearance of the volumes, though it added to their interest. On the whole, they gave an admirable picture of the work being done in a New England city which has clung to old methods of instruction for many years and which is gradually making progress on modern lines under the direction of an energetic and philosophic superintendent. A remarkable volume was entitled "An Historic Album." This album consisted of a very large number of photographs of objects of local and historical interest. Salem abounds in these objects, and the pictures

have therefore great interest and historical value. These photographs were taken and finished by pupils in the Salem High School. With each photograph was a descriptive essay written by some pupil in the high school and copied on the typewriter. These descriptions showed patient research and a good degree of power in idiomatic and picturesque English. On the whole, no other object in the Massachusetts Educational Exhibit had greater interest or historic value than this remarkable volume. Another album gave fine photographic views of the school buildings and schools of Salem. A valuable feature of the Salem exhibit was the framed pictures of rooms decorated under the direction of Ross Turner, for the purpose of art instruction in the public schools. The influence of Salem in this work will be far reaching.

From Somerville came work in kindergarten, color-drawing, nature study, elementary science, language, geography and sewing. Somerville is one of the few places in Massachusetts that support free public kindergartens, the others being Boston, Cambridge, Lowell, Newton and Brookline. The course in color was very elaborate and systematic, and the drawing was excellent. The course of sewing was very carefully graded and arranged, and its method of exhibition could hardly be improved. The processes taught and their application in completed garments filled fifteen showcases and formed a very attractive and instructive exhibit.

Waltham showed only drawing and manual training. The drawing from the evening drawing schools and from the high school was excellent. The manual training showed Mr. Schwartz's course, so far as it was developed at the time of the opening of the Exposition. This course is original with Mr. Schwartz in many of its features. He follows sloyd principles, but his models are somewhat different from those of other teachers of manual training. Moreover, he carries the



sloyd principle into work for high school pupils, including work in iron. His exhibit has received much attention, and has great excellence.

From Westfield came high school work alone. One volume was devoted to physics, another to business practice and book-keeping, another to chemistry, botany and physiology, and another to English. All the work in these volumes was characterized by excellent penmanship and a general appearance of care and neatness very creditable to the school. The work in book-keeping and business practice gave a picture of the commercial part of this school justly celebrated for its efficiency. The work in physics and chemistry was laboratory work of a high order. The work in English was carefully arranged and graded. In addition to the bound volumes, the school had sent several of its exercise books not prepared for the Exposition, but showing very clearly that the work of bound volumes was but a fair sample of its ordinary work.

Worcester devoted one bound volume to the work of its primary schools, seven volumes to the work of its grammar schools, and three volumes to the work of its classical high school. The primary work was taken from the third grade only, and showed the results of teaching the ordinary branches of study in this grade. The volumes devoted to the grammar school showed the results obtained in these schools. The methods of teaching testified to a good degree of originality. The course of study has not been seriously affected by modern notions, and knowledge and facility in its use seem to be a primary purpose of school authorities. In following out this object they reach good results. One volume from this city was unique and valuable. It consisted of pupils' monthly record books. These monthly record books are an attempt to adapt the French system to American conditions, which seems to have been successful. The record books are prepared, however, not for the inspector, as in France, but



for parents, and are shown to parents every month. The suggestion which Worcester makes in this line is worthy of being taken up and used in other places with a view to finding the best method of using the monthly record book. The high school volumes contained the usual work of classical high schools, with a record of the work of the school in preparing its pupils for college. The record was an honorable one and seems to have had a high degree of success. All the work shown was good and some was very striking and suggestive. The drawing from the Worcester primary and grammar schools was limited in amount and consisted mostly of bound drawing books selected from the various schools in the city. This method of exhibition has the advantage of showing the actual results secured in the regular work. Drawings from the high school were excellent and indicated a high quality of teaching. The sketches in water color were particularly admired. An album of photographs showed the school buildings of the city and classes at work. A series of relief maps illustrated the careful work done in geography. Framed photographs of school buildings and classes taken by pupils in the public schools showed the extent of amateur photography among Worcester school children. The evening drawing school made a display of mechanical, decorative and pictorial drawing which did great credit to the pupils and instructor. With this work was a series of plaster casts from the hands of pupils in this school. These were well executed.

Three questions concerning the exhibit remain to be answered: First, did it pay? Second, how did it compare with the exhibits of other States? Third, what will become of it?

The first of these questions may be answered unhesitatingly in the affirmative. The work of preparation was a challenge to school authorities, to teachers and to pupils, and their successes as well as their failures were often a surprise to all con-

cerned in the work. The excellence attained in the exhibition will be a standard for all future work, and the knowledge of existing weakness will help to bring strength.

In another way the exhibition was useful. The good work shown was an incentive and inspiration to all who saw it. Ideals have been raised, and no teacher or pupil who studied the excellent papers exhibited will be satisfied with work less worthy.

The chief good wrought by the exhibit, however, springs from the portion contributed by superintendents and teachers. The carefully planned courses of study, the lessons and exercises laid out with such great care, and, above all, probably, the "prefaces" of teachers, showing methods of instruction, were a school of pedagogy of the very highest practical value, sure to bring rich fruitage in thousands of schools.

The exhibit was visited and studied by many more than we had dared to hope for. At times we found it difficult to attend to all our visitors, and at nearly all times our work was studied by careful students from all portions of the world.

The second question, how our work compared with that of other States, may well be left to the report of the jury of awards in the educational department. This report has not yet been published, but the large number of medals awarded and the oral compliments of the jurors during their examinations of our work assure me that the Commonwealth maintained the standing which she has ever held in the cause of popular education.

The third question, What shall be done with the exhibit? is one that deserves the most careful attention on the part of all friends of education in the State. In this matter, as in others, I am persuaded that the recommendation of your Board will have great influence. It seems to me that the exhibit should be kept intact and placed on permanent exhibition. This plan has been adopted for the exhibits of New York, New Jersey

and Pennsylvania, and will probably be followed by other States.

Perhaps the greatest educational need of the State is a school museum. Here should be maintained a pedagogical library, a complete representation of the educational facilities of the State, a complete exposition of courses of study and methods of instruction, and a display of school architecture, furnishings and apparatus. Our Chicago exhibit would make a proper beginning for such a museum.

In conclusion, allow me to express my appreciation of the unflinching interest which the Commissioners have shown in our Educational Department, and my gratitude for the many personal courtesies which I have received at their hands.

Respectfully submitted,

(Signed) GEORGE E. GAY.

### COLLEGES.

*Board of World's Fair Managers, Commonwealth of Massachusetts :—*

DEAR SIRs :— In compliance with your request, I have the honor to submit herewith a brief report of the exhibits made by the colleges of the Commonwealth at the World's Columbian Exposition.

#### *LOCATION AND ARRANGEMENT OF THE COLLEGE EXHIBITS.*

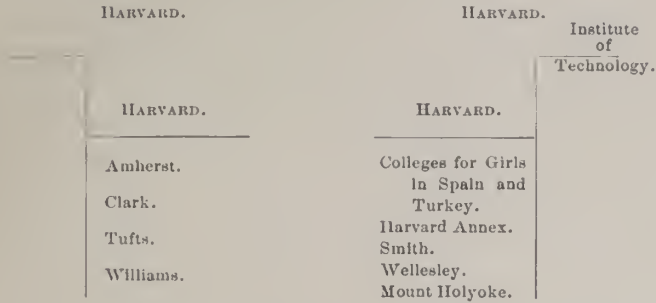
The college exhibits occupied space in the educational section of the Liberal Arts Department, in the south gallery of the Manufactures and Liberal Arts Building, adjoining the space assigned to the public schools of the Commonwealth. This space was in the central portion of the section and was designed to give to the exhibits as prominent a position as possible, as was evidenced by the fact that the allotment to Harvard University was oftentimes spoken of as



HARVARD UNIVERSITY EXHIBIT



the "place of honor." The following diagram gives a representation of the relative positions of these exhibits:—



The amount of floor space assigned to the several institutions was about as follows:—

Harvard University, 4,500 square feet; Massachusetts Institute of Technology, 1,100 square feet; Amherst College, Tufts College, Williams College and Clark University, 75 square feet each; and the colleges for women, 375 square feet.

#### PURPOSE OF THE EXHIBITS.

The apparent purpose of all the colleges was to show as fully as possible the educational facilities afforded by them and to give to the investigator an opportunity to acquire all desirable information concerning their equipment, courses of study and methods of instruction. Some of the institutions, with commendable pride, exhibited the fruits of their labors in the lives and works of their graduates.

#### HARVARD UNIVERSITY.

To Harvard University was assigned the largest space given to any educational institute in the world. It was believed that the oldest scholastic institution in the land given to the world



by Columbus should have a prominent position in a celebration designed to show the progress of mankind for four hundred years. The admirable manner in which she filled this position was the theme of much enthusiastic comment from all observers. In general, the method was to treat each department of the University as a unit, and to give a complete view of the condition and extent of its work. Pictures, charts, maps, models, specimens, pamphlets, bound volumes,—all did service in showing the resources and characteristics of each department. To one entering the exhibit from the south, the first portion to present itself was the Department of Physics. On five large tables was arranged the apparatus that has made the “Harvard experiments” in physics possible. The course, or rather the courses, had several distinguishing features of excellence, not the least of which was the low cost of the special apparatus. That the course ends in practical applications was indicated by photographs of the Jefferson Physical Laboratory, by explanatory pamphlets, and by working models of electrical machinery made by students in the Lawrence Scientific School.

On the left, as one entered from the south, was an alcove devoted to physical culture, the only complete exhibit of its kind from any American college. Here were to be seen the charts from which Dr. Sargent's type models of American college students were made, with large photographs of the models in various positions, samples of special apparatus for scientific research, photographs in great number illustrating different types of physical development, sample charts for recording physical measurements, and sample prescriptions for exercise in hygienic treatment.

The next room, used as a reception room, contained the desk of the custodian, while upon a large table was kept a supply of various pamphlets for distribution. The walls of this room were utilized for presenting many interesting fea-

ures of the work of the University. Upon the walls of the end allotted to the Lawrence School were many exterior and interior photographs of its building, showing the laboratory, reading room and class-room facilities, while adjoining these were graphic charts answering all reasonable questions as to the equipment, growth, finances, number of students, graduates and the like. In the centre was an ample book-case crowded with publications in uniform crimson binding, legal works of the instructors. Above and on either side were the still more impressive portraits of her distinguished teachers, Story, Dane, Parker, Parsons, Greenleaf and Washburn. At the opposite end of this same room was the exhibit of the Divinity School, which included portraits of her distinguished graduates grouped about photographs of Divinity Hall and the Divinity School. Among these might be mentioned Sparks, Channing, Clarke, Hedge, President Hill and Samuel Longfellow. In the significant collections of portraits, busts and publications that covered the walls of this room were three exhibits of especial interest to Harvard College,—the first, a series of three charts drawn from the Quinquennial Catalogue, showing the transmission of education in families. Beneath the portrait of Sir Richard Saltonstall was the record of eight generations of Harvard graduates in the male line; a picture of "The Reverend Mr. John Lowell" presided over a like enviable record of six generations; while the chart devoted to the Ware and allied families showed the same heritage of academic loyalty. Close at hand was a large case of historical publications with numerous portraits on either side. Here, again, was something of the same suggestion of venerable traditions in the long list of these famous graduates of the college, who in their day had been contributors to American historical literature. Living writers, biographers, genealogists and the like were excluded, the line extending from the two Mathers

to the familiar names of Prescott, Motley, Bancroft and Palfrey. Farther to the left was a still more familiar group of portraits. Here were to be seen pictures of living men grouped around the revered faces of Andrew Preston Peabody and Phillips Brooks, preachers to the University, who had served under the present *régime* of religious worship and instruction.

Passing from the reception room to the west, one saw a large map of the University property, and near it a display of photographs giving views of exteriors and interiors, famous for the celebrated names which will forever be associated with them. Here was collected together the exhibit of the Department of Chemistry, and a collection of two hundred and three new compounds discovered or investigated in the laboratory.

Across the main isle was the exhibit of the Medical School, probably the largest department exhibit in the group. Anatomy, bacteriology, surgery, physiology, the dental school and the veterinary school were represented. In this department the feeding of young children attracted much attention.

The natural sciences held the entire eastern section of the space. The plant of the University Museum and the Museum of Comparative Zoölogy were set forth in detail by elaborate architectural plans for each floor, supplemented by numerous interior photographs showing the contents of the various rooms. Near these were diagrams used in teaching, so arranged as to show the relative merits of different methods and material. The character of the work done was further illustrated by a large number of the students' drawings, while in addition were to be seen colored plates and a glass case containing note books, laboratory apparatus, and material specially adapted to zoölogical work.

Two large cases offered by the mineralogical section, without pretentious or heterogeneous display, showed the methods

and resources which offer peculiar facilities for study, teaching and special research. In one of these was a large number of carefully prepared specimens, labeled and arranged to illustrate the investigations made in regard to the crystalline structure of meteoric iron, while in another there was to be seen a beautiful collection of specimens illustrating the formation and artificial coloring of agates.

Beautiful glass models of flowers distinctly claimed the place of honor in the Botanical Department, to view which many visitors made the arduous ascent to the south gallery in order that their curiosity in regard to these famous flowers might be gratified, and to study the resources of the Botanical Museum as illustrated by the remarkably interesting cases of specimens in economic botany, together with the colored plates of Dr. Farlow's forthcoming work on North American fungi.

All things considered, the Department of Geology, including Paleontology, Meteorology, Petrography and Physical Geography, presented one of the most carefully elaborated, systematic and instructive sections of the University exhibit. Like the departments already mentioned, this was equipped with excellent photographs of the museum, class work and laboratory facilities. From the nature and variety of the specimens, charts and diagrams, photographs and models used in teaching, the space covered was considerable; but it was not in the extent and variety of the exhibit that its chief merit was found. Here the teacher or student found methods, tools, students' note books, specimens, models, charts and drawings, so arranged that he might almost reconstruct the courses and go over the work in detail.

The meteorological exhibit included a set of cloud photographs and maps used in teaching, together with laboratory charts, maps and observations on temperature and pressure. Petrography showed micro-photographic apparatus and ex-

tremely interesting specimens, while physical geography as a university study is to many people so much of a novelty that the array of relief maps illustrating geographical development, together with maps and charts used in teaching, attracted considerable attention, doing much to dignify the study in the minds of teachers.

Astronomy occupied the long walls of the room devoted to physics, being crowded with a bewildering array of terrestrial and celestial photographs and illustrations from the published annals, interspersed with portraits of benefactors, such, for instance, as William Cranch Bond, Uriah Atherton Boyden, Henry Draper and Robert Treat Paine; a large placard which acknowledged the debt of the Observatory to successive benefactors, and enumerated the six permanent stations, the sixteen temporary stations, the principal astronomical instruments, the half century of published annals and the unpublished investigations in which these benefactions have borne fruit. Photographs showed the rare equipment of the stations and the unique facilities for observation afforded by the high altitude and southern position of the Arequipa Observatory in Peru, while other photographs showed the marvelous results of the facilities described.

This report would be incomplete without some reference to the numerous charts and diagrams illustrating the growth and development of the University, and of its more prominent features. Endowments, instructors, students, expenditures, for a long series of years, were tabulated and presented in a form most likely to impress the mind of the observer and to render such impressions permanent.

As a means of showing the claim of Harvard University upon public confidence in the future, no less than its obligations to public generosity in the past, her exhibit was amply justified; but the University has a higher mission than self-justification. In age and station she stands among the first



MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
BOSTON



MASSACHUSETTS INSTITUTE OF TECHNOLOGY, — First View.





MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
BOSTON



MASSACHUSETTS INSTITUTE OF TECHNOLOGY, — Second View.



of our institutions; and she cannot, if she would, escape the responsibility of leadership. To her much has been given, and of her much will be required in moulding educational traditions. It is because she saw the opportunity and responded generously that she has earned the gratitude of educators everywhere.

*MASSACHUSETTS INSTITUTE OF TECHNOLOGY.*

As shown upon the diagram, this institution occupied two alcoves, one on either side of what was not inaptly called College Row. At her east side was the elaborate display of Michigan University, while on the west were Harvard, Princeton and Columbia. To say that she filled this important position creditably is to understate the truth, for there was a system and completeness in her display that excelled in many particulars the exhibits of the older institutions. The most careless observer could not fail to get some knowledge of the character and extent of work done by this school, while the student had everything at hand which could aid him in his researches.

The thirteen courses were represented in such a manner as to show facilities, methods and results of instruction. A striking portion consisted of large photographs, of which nearly three hundred were of exterior and interior views of buildings, vistas of drawing rooms and laboratories, views of groups of apparatus and of single important pieces of apparatus, together with views of students at work. A set of charts gave complete information concerning the distribution of students geographically, the residence of graduates and studies in the several courses.

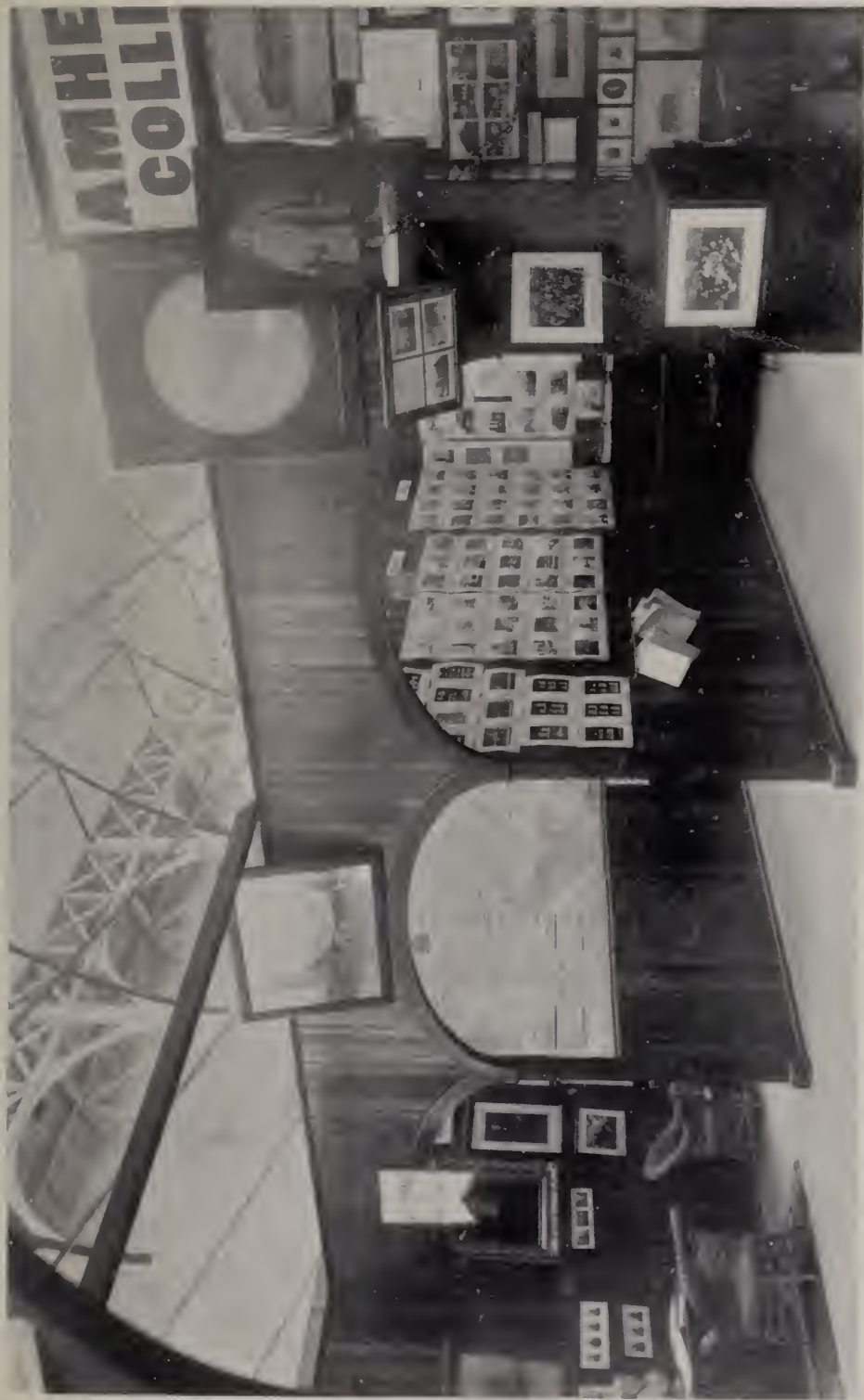
Not many of the higher institutions of learning showed students' work. The Institute of Technology, however, was a notable exception in presenting a large amount of this work, including drawings from the regular class work in the several courses, partly framed and hanging on the walls and

partly in winged frames. There were also drawings accompanying the theses submitted by students at the end of their courses, in proof of their competency to make original designs or investigations of professional merit. Here also were bound volumes of engineering drawings; full sets of pieces in carpentry, forging, pattern making and the like, made by students of mechanical engineering as a part of their regular course. A separate four-page circular to be had from the custodian gave an account of the instruction in the mechanic arts; chemical products prepared by the students in the laboratory of industrial chemistry and a collection of yarns dyed in different colors or shades by the students in industrial chemistry; one hundred and thirty-two theses as originally presented and without revision by the members of the graduating class of 1892.

Another striking feature of this exhibit was a set of portfolios containing a detailed and fully illustrated description of the methods of instruction and of the equipment of each of the departments of the Institute, representing the administrative methods of the school, the organization of its libraries, the arrangement of rooms in the various buildings, the apparatus employed for heating and ventilating, and student life at the Institute.

Visitors were likewise deeply impressed by a collection of books and pamphlets used in instruction, which books and pamphlets have been prepared with direct reference to the work of the Institute by its own teachers, the larger part of which have been printed for the use of its students without formal publication. These aggregated several thousand pages, with a large number of plates and illustrations constituting a collection without a parallel in academic literature.

Among interesting secondary features of this exhibit may be especially mentioned the Lowell School of Design, covering patterns for wall papers, carpets, etc.



WILLIAMS COLLEGE.

TUFTS COLLEGE.

CLARK UNIVERSITY.

AMHERST COLLEGE.

COLLEGE EXHIBITS.





In apparatus, typical pieces were shown in civil and mining engineering and biology. A three-phase motor constructed by students in electrical engineering in 1892 was deserving of special mention. The Institute had also a special exhibit, in connection with that of the other land-grant colleges, in the Agricultural Building.

The courts of the Institute, as indeed of all our educational institutions, were visited by vast numbers during the six months of the great Exposition. The large majority, of course, simply wandered through, looking about for something curious or striking; but many hundreds of earnest students of science and technology, superintendents of schools, teachers and others, visited this exhibit for the purpose of careful and protracted examination, receiving therefrom instruction and inspiration.

#### *AMHERST COLLEGE.*

In comparison with that allotted to Harvard University, the other colleges of the Commonwealth had meagre space for their exhibits. In an alcove ten feet deep and seven and a half feet wide it seems impossible to put a representation of a great educational institution that shall do justice to the exhibitor.

From the first, Amherst decided to exclude from its exhibit not only everything of the nature of curios, memorabilia and relics, but also materials of every sort, apparatus of all kinds, museum specimens and the like, no matter what might be their special interest, historic or scientific. Pictorial and photographic art was alone depended upon. First in importance were seven characteristic photographs of interiors and exteriors of buildings, enlarged by solar process to a size thirty by forty inches,—among them the general group of the main buildings, the president's house,

the library, the college church, Walker Hall, interiors of the library reading-room, and the gallery of casts of ancient sculpture. A chart illustrated geographically the total number of students at Amherst during each year since its organization in 1821, the number entering the freshman class annually, the number entering the three upper classes (always about one-seventh of the entire number entering), and the number of the graduating class. This diagram most forcibly exhibited the instant success of the college at the time when President Moore came from Williamstown as Amherst's first president, bringing with him a large colony from the student body there, and after a period of depression, the quick rebound and the return of prosperity on the election of Dr. Edward Hitchcock; the further growth and ample development under Dr. Stearns and President Seelye, and the sudden leap to Amherst's present numbers upon the accession of President Gates.

Portraits of all the former presidents were there, with those of the present president, his faculty, and the board of trustees, as also many of her famous graduates, as follows: Rev. Henry Ward Beecher, Rev. Richard Salter Storrs, Rev. Roswell Dwight Hitchcock, Bishop Huntington, General Francis A. Walker, Postmaster-General Maynard, Governor Bullock, Judge Lord, Judge Spofford and a score of others.

The space did not permit an exhibit, extensive and significant as it might have been, of the printed works of the alumni of Amherst. A select case of volumes, however, presented the publications of the members of the present faculty, among them being the Classics, edited by Professor Tyler and Professor Crowell; papers on Ethics and Economics, by Professor Clark; reports of the archaeological expeditions of Dr. Starrett in Asia Minor, the astronomical publications by Professor Todd, volumes on the history of

Physical Culture and Anthropometry at Amherst (where the modern college gymnasium originated), the rhetories of Professor Genung, and the well-known indexes to periodical and general literature by Mr. Fletcher of the College Library.

By the use of plans and elevations the recently erected buildings were represented, as also were the new laboratories for physics and chemistry, which latter have just been completed and equipped at a cost of \$100,000.

The work of other scientific departments was completely shown by Dr. Hitchcock's photographs and anthropometric charts and studies, with tables and statistics; Professor Todd's photographs of the transit of Venus, in 1882, at the Lick Observatory, and the views illustrating the work of the United States Eclipse Expedition to West Africa in 1889, under his charge; and charts showing the geology of the region east of the Hoosac Mountains in Massachusetts, the work of Professor Emerson, recently published by the United States Geological Survey.

The undergradnate life of the college at the present day was not forgotten. All the student organizations, their literary periodicals, and the houses of the nine Greek-letter fraternities, so prominent a feature in the life of Amherst students of to-day, were satisfactorily exhibited.

By adherence to the lines above indicated, the exhibit of Amherst College was condensed into such compact form that, although everything of importance had representation, the inspection of the entire collection demanded only a few minutes, and so small an exhibit at so great a fair was, in some respects, greater than a large one.

*CLARK UNIVERSITY.*

The exhibit of Clark University was confined to books, pamphlets and photographs. The books included twenty-nine volumes, the publications of the faculty of the college. These consisted of two volumes of Mathematics and Physics; one each of Biology and Theses for Ph.D.; four volumes of Psychology and Education; Hegel, the national philosopher of Germany; Chemistry; four volumes of the "American Journal of Psychology;" four volumes of the "Journal of Morphology;" *Igneous Rocks of Arkansas*, by J. Francis Williams; *Pedagogical Seminary*; *Criminology*, by Arthur MacDonald; *Early Registers and Reports*; *Aspects of German Culture*, by G. Stanley Hall; *Methods of Teaching and Studying History*; *Bibliography of Education*, by G. Stanley Hall, and a *History of Modern Philosophy* in two volumes, by B. C. Burt.

The pamphlets were numerous and gave full illustrations of the University in its various departments, the photographs designed to show the facilities for instruction being classified as follows:—

Fifteen, illustrating facilities for the teaching of modern mathematics; fifteen, illustrating facilities for teaching chemistry. In addition to these there were twenty-eight photographs illustrating the facilities for teaching biology, twenty-one of exteriors and interiors of the college buildings, forty illustrating the facilities for teaching psychology, and sixteen illustrating the facilities for teaching pedagogy.

Clark University devotes itself entirely to graduate work, being the only institution of its kind in the country. This exhibit attracted much attention, and it was a cause of much surprise to many of its visitors, who, in general, were poorly informed with respect to the character of its work, and who

had not expected to find such opportunities for original investigation on this side of the Atlantic.

*TUFTS COLLEGE.*

The exhibit of Tufts College was modest and attractive. It afforded the visitor ample opportunity to learn its important features without wearying him with detailed information, and consisted of twenty-five framed photographs of college buildings, interiors and exteriors, three charts showing courses of study, a map of the college grounds, a floor plan of Barnum Museum, a photograph of the college church, together with pamphlets describing new courses of study and catalogues of the college.

A unique part of the exhibit was the collection of charts, showing, by graphic methods, the course of study recently adopted, in which course Tufts has taken advanced ground, and may with pride see the other colleges of this country following where she has led.

*WILLIAMS COLLEGE.*

The exhibit of Williams College was arranged as a reception room, comfortable chairs inviting the visitor to rest, and tables affording the alumni an opportunity to write.

The walls of the room were decorated with thirty-three large photographs of college buildings, exteriors and interiors, and with portraits of her distinguished alumni.

*MOUNT HOLYOKE COLLEGE.*

The colleges for women united in furnishing their space as a reception room, a large table occupying the centre of the room, two large bookcases holding portions of the exhibit, and chairs provided for the comfort of visitors. On the table were registers for the alumnae of the colleges, and the exhibits of the



Society to Encourage Studies at Home and of the Woman's Educational Association. The south wall of this room and a part of the table were devoted to the exhibit of Mount Holyoke College. Hanging on the centre of this wall was a large picture of Mary Lyon, beneath which was an embellished chart, the brief sketch of the history of the remarkable institution which her interest and devotion brought into existence. Around this, as a centre, were grouped large photographs of exteriors and interiors. These were supplemented by a map of the college grounds, by floor plans of college buildings, by wall frames filled with photographs, and complete information concerning the work of the institution.

The following volumes added interest to the exhibit:—

The history of Mount Holyoke Seminary, the first half century, from 1837 to 1887; the General Catalogue; bound Documents and Addresses; bound Catalogues of Mount Holyoke Seminary from 1837 to 1893; bound volumes of "The Mount Holyoke," a periodical published by its students.

As the "mother of colleges for women," Mount Holyoke attracted much attention from visitors of every land. Its long list of distinguished alumnæ was represented by many whose fame is world-wide.

#### WELLESLEY COLLEGE.

Wellesley sent the largest exhibit in the room, and one of the most attractive. She was also the only one of the smaller colleges to furnish an attendant.

The college occupied one-half of the east wall and one of the bookcases. Her exhibit consisted in part of the following:—

Eleven framed photographs of exteriors.

Large album containing full account of the organization and administration of the college, with statistics and other general information; curriculum of the school, with full explanation of the



MASSACHUSETTS COLLEGES FOR WOMEN.



course of study in the various departments and of the methods of instruction; photographs of interiors and facilities for instruction.

Statutes of Wellesley College.

Blanks and circulars used in administration.

"Matriculation Book," given to the student on matriculation, and presented by the student with the signatures of instructors, showing that a requisite amount of work has been done for the Bachelor's degree.

Legislation of the Faculty of Wellesley College.

Reports of President Shafer, 1888-1892.

Alumnæ Registry, 1879-1885.

Record of Wellesley College officers and students, 1875-1891.

Calendars of Wellesley College.

Sketch of the founder of Wellesley College, by Marion Petton Guild.

Illustrated article on Wellesley College, containing portrait of Henry F. Durant, founder of the college

Syllabus for Course in Constitutional History; Syllabus for Course in Economics, by Katherine Coman.

Thesis in Economics, showing Use of Documents.

Syllabus for Study of Italian Art, by E. H. Denio.

Outlines for Course in History of Civilization, by M. A. Knox.

Specimen Blanks for Drawing in Zoölogy, by Mary A. Wilcox.

Specimen Blanks and Outlines for Physiology, by Caroline Woodman.

Specimen Outlines and Reports upon Observations in Experimental Psychology; article on Experimental Psychology at Wellesley College; Photographs of Number Forms, by Mary Whiton Calkins.

Statistical Tables, Wellesley College Gymnasium, 1891; Record of Measurements of 40 Freshmen, 1891-2; Anthropometric Table arranged from Measurement of 1,500 Students, Lucile Eaton Hill and M. Anna Wood.

Specimen Syllabus Papers in Course in New Testament; Introduction, by Sarah F. Whiting.

Specimen Syllabus Papers in Physical Astronomy; Specimen

Sheets of Laboratory Directions in Physics; Records of Experiments in Physical Laboratory, by Sarah F. Whiting.

File of "Wellesley Magazine," published by Students.

Scripture Studies on the Origin and Destiny of Man, by A. E. F. Morgan.

The graduates of Wellesley manifested the greatest enthusiasm in behalf of their *alma mater*. Weekly receptions were held at the exhibit, under the auspices of the Chicago Alumnae Association, being always attended by large numbers of former students.

SMITH COLLEGE.

Smith College occupied one-half of the eastern wall of the room, within which space were to be found the following:—

Framed photographs of exteriors and interiors, showing the various buildings of the college and its facilities for instruction; framed photographs giving pictures of scenes in the Greek play "Electra," as rendered at the college; a bound volume entitled "A Greek Play and its Presentation;" a chart showing the various courses of study in the college; a chart showing the attendance in the different departments since its organization; a map of the grounds of the college; floor plans of college buildings; a photograph of equatorial telescope; and calendars.

This young and vigorous institution made many friends by its exhibit. The ample facilities for instruction, the wonderful growth in numbers, the high standing won by its graduates, all combined to extend its influence and to add to its reputation. A weekly reception was held by the graduates, which receptions were well attended.

*THE SOCIETY FOR THE COLLEGIATE INSTRUCTION OF WOMEN.*

The "Harvard Annex" made a quiet display of her buildings, class rooms, libraries, etc., together with catalogues and courses of instruction. A pamphlet for free distribution gave all necessary information concerning the history and work of the institution.

*THE AMERICAN COLLEGE FOR GIRLS AT CONSTANTINOPLE AND THE INTERNATIONAL INSTITUTE FOR GIRLS IN SPAIN.*

These institutions held space with Massachusetts colleges for women, because they received their charters from the Commonwealth of Massachusetts.

The former showed photographs of school buildings, views of Constantinople, portrait of Miss Mary M. Patrick, president, course of study, specimens of pupils' work in drawing and various branches of scholastic education, diploma of the college, and specimens of embroidery, sewing and other handiwork of the pupils; while the Institute for Girls in Spain exhibited framed photographs of San Sebastian, the home of the school, a portrait of Mrs. Alice Gordon Gulick, director of the Institute, a diploma of the Institute, photographs of the faculty, instructors and graduates, specimens of the handiwork of the pupils, framed exhibits in botany, and pamphlets for distribution, giving account of the work of the institution.

Both institutions gained friends and influence by their work, and their exhibits formed an exceedingly attractive feature of the educational display of the State.

Respectfully submitted,

GEORGE E. GAY.



*MINES AND MINING.*

When it became necessary to consider the question of an exhibit from the Commonwealth in the Department of Mines and Mining, the Massachusetts Board of World's Fair Managers placed itself in correspondence with Prof. N. S. Shaler, of the Lawrence Scientific School of Harvard University, with the view of securing from him suggestions as to the best way in which this work could be done.

These conferences resulted in the nomination, by Professor Shaler, of Mr. George E. Ladd, an instructor in the department of geology of Harvard University, as an agent of the Board to take charge of the exhibit. Mr. Ladd was accordingly appointed to this position in August, 1892.

Mr. Ladd's report, which follows, tells of the work done by him, and of the results accomplished. The collection made by the Board under Mr. Ladd's superintendence reflected credit upon the State, resulting in bringing together the largest display of the mineralogy, petrography and building stones of the State which has ever been made. The best testimony to the completeness of this exhibit is to be found in the words of commendation which have appeared in a number of technical magazines, one of which, the "Journal of Geology," a periodical of recognized high

scientific authority, in speaking of the exhibits of the New England States, but more especially of Massachusetts, says:—

The exhibits of the New England States are naturally representative of less economic value than those of some of the other States, because, with the exception of building and ornamental stones, most of their mining products are of subordinate importance; but, at the same time, they display what they have in a systematic and consistent manner. The Massachusetts exhibit is thoroughly characteristic and well arranged, showing not only the economic products, but also many rocks and minerals of purely scientific interest.

The official statement of the Massachusetts Board of World's Fair Managers shows the amount of money which was expended on this exhibit. The Board feels sure that it was wise for Massachusetts to thus show herself in this building side by side with the other States of the Union.

It will be noticed in Mr. Ladd's report that, through carelessness on the part of the Exposition authorities, one of the cases containing a part of the exhibit was lost. The Massachusetts Board of World's Fair Managers, however, is glad to be able to state that, although it was quite impossible to place an exact value on the contents of this case, it has adjusted the loss with the Exposition authorities at the sum of \$150.

In referring to the report of Mr. Ladd, herewith,

the Board desires thus publicly to thank him for the interest and energy which he gave to this work, without which, or without the care in the many details incident to the collecting and installing of this exhibit, its value would have been very much lessened. It was certainly to the citizens of the Commonwealth a dignified exhibit of the State's resources, and to the geologist and scientist it was a display which called forth praise and awakened interest.

*Massachusetts Board of World's Fair Managers:—*

DEAR SIR:—I herewith submit the following report concerning the Massachusetts exhibit in the Mines and Mining Building at the World's Columbian Exposition in Chicago:—

About the middle of August, 1892, I was appointed by you as agent to collect and arrange a representative set of the minerals of our State for exhibition at the World's Columbian Exposition. A short time afterwards the scope of my work was enlarged and a general large plan formulated to make our exhibit cover, in addition to the minerals, the building stones, fossils, and our most typical and geologically interesting rocks. This gave four groups of specimens to be collected, viz., building stones, minerals, rocks and fossils.

The task of collecting, arranging, shipping and setting up the exhibit in Chicago was almost entirely my personal work, although I was assisted most generously by the local collectors in the State. Many of these gave considerable time and labor in visiting localities with me and quarrying specimens. Moreover, the call for specimens, either as gifts or as loans to the exhibit, which was made to the collectors of the State met with a most generous response. The greatest

difficulty was encountered in getting together the collection of building stones, and this only attained its measure of completeness through most persistent efforts and a large amount of time spent in personally quarrying specimens and in getting them dressed.

A large number of the polished specimens for the petrographical collection were rubbed down and polished by the firm of Badger Brothers of West Quiney, without any charge. It is not possible, however, in the limits of this report, to mention individually all of those who so kindly gave assistance in one way or another.

I regret to have to record the loss of a part of our collection at Chicago. This unfortunate occurrence was due probably to some official of the Mines and Mining Department, as the Transportation Department had a receipt from the former for the full number of cases that were shipped, but the Mines and Mining Department was unable to turn over to me seven of these cases and could in no way account for their absence. A large amount of time was given in searching for these boxes, without avail.

#### *THE BUILDING STONE COLLECTION.*

The building stone collection proved to be the most difficult to make, but was perhaps the most complete and valuable of any one of the four groups. In determining the size and shape of specimens for this collection it was necessary to take into consideration such dimensions as would clearly show the material and yet would not be so large as to make the specimens too heavy for exhibition purposes in cabinets. In regard to the shape, it was to some extent necessary to consider the nature of the rock to be shown and the particular qualities to be made prominent. With these points in view, it seemed best to select for the exhibit, in general, a cube

modelled after the collections at the Smithsonian Institution, having edges four inches in length, the front of the cube polished (where possible), the back rough dressed, and the other sides dressed in various ways so as to best show the qualities of the stone, all of the faces having four-inch margins of drove-work, with the exception of the front one. In addition to these cubes, a number of our quarrymen were allowed to furnish certain specimens of odd shapes and sizes, within certain limits, for special purposes.

This part of our exhibit as set up in Chicago contained about one hundred and twenty dressed four-inch cubes, six slabs, six by twelve inches square, showing "sapfaced" rock; one slab of granite about a foot square and an eighth of an inch in thickness, so cut as to show the extreme toughness of the granite; and one life-size carved negro's head, in sandstone, to show the uniformity in color and texture, and the susceptibility to carving of this sandstone.

The number of cubes in our exhibit comprised more than one-fourth of the whole number of such cubes furnished by all the States.

The rocks which were represented by the collection consisted of granites, syenites, gneisses, porphyry, diabase, diorite, sandstone, verde-antique, marble, seapolite and serpentine. The granites and gneisses represented the great building stone industry of the State, and were present in the largest numbers, and perhaps the greatest variety, showing a wide range of color and texture. The serpentine and verde-antique collection was said to be, by experts, the best and most varied ever gotten together in this country. The seapolite was exhibited in a polished and dressed specimen for the first time.

The most important localities represented in this collection by the granites, gneisses, etc., were Quincy, Cape Ann, Lowell, Graniteville, Chelmsford, Fitchburg, Monson, Fall River, Leominster, Milford and Chester. The granites from

Milford are coarse-grained, pink in color, and warm and beautiful looking. Specimens from the Quincy Granite Association vary somewhat in texture and color, one sample from Braintree having a distinct reddish tint; the others vary from grayish to greenish. The Cape Ann specimens from Rockport, Bay View, Pigeon Cove, Lanesville and Gloucester vary from gray to deep greenish and bluish tints. The Fall River granites are of a light pink, resembling somewhat the Milford specimens.

The gneisses vary in color and structure, especially in the amount of banding visible. The range of color is from a light to a dark gray. They come from the districts about Lowell, and westward and southward to Chester.

The marbles were mostly from Lee, North Adams, West Stockbridge and Van Deusenville. A very beautiful piece of statuary marble came from Stoneham. The marbles vary in texture and color from pure white to dark bluish shades. The handsomest specimens came from Lee, North Adams and Stoneham.

The verde-antique and serpentine came from Chester, Lynnfield, and, mostly, from Newbury. The specimens of verde-antique from Newbury show a great variety of combinations, in white, yellow, green and gray. The serpentine from Chester is of a dark green color, and took a high, lustrous polish; that from Lynnfield is a much lighter green color.

The sandstone came from the Norcross quarries at Longmeadow, and is a very uniform textured, compact sandstone, of four different shades, from reddish brown to chocolate.

The other specimens are mostly from scattered localities where the stone industry has been but little or not at all developed. The greater part of these specimens were obtained by visiting the localities, blasting out the rock, and having it dressed according to the same specifications which had been furnished the quarrymen of the State.



*THE MINERAL COLLECTION.*

The mineral collection, in the number of specimens, largely exceeded the other groups, containing in all about six hundred and fifty specimens, representing about one hundred and forty species. There were specimens from the following mineralogical groups: The native elements, sulphides, oxides, silicates, tantalates, columbates, phosphates, sulphates, carbonates and hydrocarbons. By far the greater part of these, however, belonged to the group of silicates.

The attempt was made to obtain a systematic and complete set, as far as possible, of the minerals occurring in the State. This idea was carried out rather than the one of getting together minerals selected especially for display, or to give a false impression of our mining resources. I think ours was the only State exhibit which carried out this idea.

The minerals came practically from all parts of the State, though probably the Berkshire Hills proved the most prolific sources of supply. The localities which perhaps furnished the most important collections were the regions immediately about Chester, Chesterfield, Tyngham, Bolton, Fitchburg (including Lunenburg, Lancaster and Sterling), and Rockport. Many of the minerals of Chester, Bolton and Rockport are very large, and some of those from Chester and Bolton unusually beautiful.

In the search for minerals, one species, new not only to Massachusetts but to this part of the country, was found at Rockport, in a pegmatite segregation in the granite in the main quarry of the Rockport Granite Company. At the suggestion of Dr. Huntington, instructor in mineralogy at Harvard College, an analysis of this mineral was made by Mr. T. H. Currie, his assistant, and it proved to be fayalite, a ferrous ortho-silicate. Fayalite rarely occurs massive, but commonly in minute ortho-rhombic crystals. It occurs in

Ireland in pegmatite, and as nodules in the volcanic rocks at Fayal, Azores, and in lythophyses in rhyolite at Obsidian Cliffs in Yellowstone Park, and also in a massive form at Cheyenne Mountain, Colorado. The specimen as found weighed about forty pounds, and was a distinctly crystalline mass. It occurred with magnetite and one or two other minerals which have not yet been determined. It was most unfortunate that the finest part of this specimen was among the boxes lost by the World's Fair officials.

#### *THE PETROGRAPHICAL COLLECTION.*

No attempt was made to gather anything like a complete petrographical collection. Such a task was alike too great for the time and means at my command. As has been said above, the only petrographical specimens collected were such as would, in the first place, show in a general way the varieties of rocks occurring in the State; and, secondly, those particular kinds which are interesting on account of their classic character in geographical literature. About one-half of this collection, however, consisted of specimens of irregular outline and of various sizes, with one face smoothed and polished, in order to show to the greatest advantage the color and structure of the rock. This collection was probably the most beautiful and striking part of the exhibit. The serpentines, felsites, breccias and granites, in general, were the handsomest varieties in this collection.

#### *THE COLLECTION OF FOSSILS.*

Few fossils are found in the State. There are certain localities, however, which have become classic for such as occur there, and, representing these, specimens were obtained as loans from the palæontological laboratory of Harvard

College. It was possible to make a very fine exhibit of the fossil foot-prints which occur in triassic sandstone at several points in the Connecticut Valley, through the kindness of Mr. T. M. Stoughton of Gill, Mass.

The exhibit as set up in Chicago was divided into two parts, the building stone collection being located in the east gallery with the general collection of building stones. The minerals were in the west gallery and occupied there six double upright cabinets, and a semi-pyramidal-shaped set of shelves placed against the wall between two rows of cabinets. The minerals and rocks were grouped synoptically as far as the nature of the cabinets would allow. The exhibit would have perhaps been more effective had all been exhibited in the same place, but the advantage to be gained by separation was through the opportunity for a comparison of our building stones with those from other States that were exhibited in the immediate vicinity.

In closing this report it is both justice and my pleasure to acknowledge here my personal indebtedness to you for your constant courtesies and intelligent aid throughout the progress of my work.

Very respectfully yours,

(Signed) GEORGE E. LADD.

*STATE BOARD OF HEALTH.*

It is with very great pleasure that the Board of World's Fair Managers call the attention of the readers of this report to that of Prof. William T. Sedgwick of the Institute of Technology, under whose charge was placed the valuable exhibit made by the Massachusetts State Board of Health.

Professor Sedgwick's report gives in detail the nature of the work done by him. It may not, however, be generally known that no State in the Union has through its Board of Health accomplished work either of the same nature or of the same degree of usefulness and benefit as has that of this Commonwealth.

The exhibit was of very great credit not only to the State Board of Health but also to the State, in that it served at once to place her in the very front rank in the scientific subjects to which it had special reference; it has received well-merited praise from many scientific journals; it was a subject of study by the scientists and sanitary engineers who assembled in Chicago to attend the conference having to do with these special topics; and, as Professor Sedgwick in his report says, the Massachusetts exhibit obtained "the highest award given, both for general excellence and for special sanitary investigations."

The "Journal of the American Medical Association," in an article of some length devoted especially to the Massachusetts sanitary exhibit, says:—

The exhibit of the State Board of Health of Massachusetts in the Bureau of Hygiene and Sanitation in the Anthropological Building at the World's Columbian Exposition is one that should be examined by all interested in sanitary work. It shows the various lines of work done by the Board as well as the results of such investigations.

In concluding his very interesting account of the exhibit of the Commonwealth, the writer says:—

Massachusetts has been more liberal in its appropriations to the State Board of Health than any other State in the Union, and as a result the work accomplished in many respects is better than any done anywhere else in the civilized world. The exhibit is an object lesson worthy of study by other States, as, owing to the increased density of population and increase of manufacturing wastes, our water supplies are annually becoming more polluted, and the necessity for such work more and more imperative.

The "Boston Medical and Surgical Journal," in an article alluding to this exhibit, gives likewise to the Commonwealth great praise for the part which she has played in the scientific investigations which the exhibit calls attention to, when it says: "Among the interesting hygienic exhibits at Chicago that of the Massachusetts State Board of Health is particularly valuable," and "the display of the official reports and blanks which are used for the routine work of the Board are

full of suggestions for physicians from small towns where local sanitation is just beginning," while the "Engineering News," in its article entitled "Sanitation and Sanitary Appliances at the Columbian Exposition," says of the contribution from the Commonwealth, "Massachusetts had a very complete exhibit showing models of its Experimental Station and its various features, samples of filtered water with analyses attached, views of sewage purification works in operation in Massachusetts and a large map showing the normal chlorine of the waters of various parts of the State."

These extracts surely prove this exhibit to have been one of which the State may well be proud, for it not only carried to the minds of visitors proof of the excellent work done under the supervision of the State Board of Health, but to the seeker after scientific knowledge it was of decided benefit and must prove of very great value to any other State desiring to improve the health and sanitary condition of its citizens.

*The Massachusetts Board of World's Fair Managers.*

DEAR SIRs:—It was originally intended that the exhibit of the Bureau of Hygiene and Sanitation, including the exhibits of State Boards of Health, should occupy a portion of the space devoted to the Department of Liberal Arts, of which it formed one subdivision. But as assignments proceeded it became evident that the space allotted to liberal arts was altogether inadequate. Accordingly, at the last moment, the Exposition authorities decided to erect an entirely separate building (known as the Anthropological Build-



ing), as a kind of annex to that devoted to the liberal arts, and to assign to it not only the entire exhibit of anthropology and of charities and correction, but also that of the Bureau of Hygiene and Sanitation.

The State Board of Health of Massachusetts had very early been urged to make an exhibit, and the Massachusetts Commissioners signified their readiness to co-operate. The Board itself, recognizing the opportunity and the duty of making more generally known its work, and especially the results of its long-continued investigations upon water supply and sewerage, its system of sanitary advice to cities and towns, and its regular inspection of food and drugs, signified its approval and designated as its special representative in the matter Prof. W. T. Sedgwick, biologist of the Board.

Inasmuch as a new building had to be erected at the last moment, as has been said above, there were great delays. The space originally applied for by the Board was 1,200 square feet. It appeared in the end that this amount of room might easily have been used to advantage; but the amount finally granted was only 500 square feet. Afterwards, when it became evident to the authorities themselves that this amount was far too little, an additional grant of 120 square feet was secured by the Board, to be used as an "annex."

The exhibit already designed and prepared in Boston and Lawrence under the personal direction of Professor Sedgwick was finally installed in a plain but dignified court with an adjoining annex on the floor of the Anthropological Building early in June, being not only the first of the State exhibits in the Bureau of Hygiene and Sanitation to be made ready, but also the first in respect to space occupied and in respect to the range of materials and results exhibited.

Over the main pavilion rested the coat-of-arms of the Commonwealth, accompanied by the legend "Massachusetts State Board of Health," while on the rear wall was hung a large map of the State bearing in red the *isochlors*, or lines joining points of equal normal chlorine, of which the establishment constituted an original and important feature of the sanitary investigations of the Board in 1887, 1888 and 1889; and because this work is still unique as well as of fundamental importance in water analysis, it attracted marked attention. The construction of the map itself deserves a word in passing. It was large, viz., about sixteen feet long by ten feet wide, and was made by mounting, side by side, in their proper places, the separate sheets of the excellent map of Massachusetts published by the Topographical Survey Commission. The result was a map of unusual beauty of workmanship and great precision—something in itself worthy to be exhibited by the Commonwealth.

The main pavilion contained also the principal and most notable feature of the exhibit, viz., a display of the methods and results of those investigations upon water supply and sewerage which have not only formed a sound basis for the sanitary advice given by the Board to many cities and towns of the Commonwealth, but have also perceptibly influenced the theory and practice of sanitation in these matters all over the United States. In particular, the work of the Lawrence Experiment Station was made clear, for the reason that this is the first station of the kind in America, if not in the world. A model of the station, some eight feet long, was shown, as were also numerous drawings, photographs and aetnal sections of sand filters; one indoor filter, complete; samples of crude sewage, purified sewage, sands, river waters, filtered waters, apparatus, both chemical and biological, etc. Typical sur-

face waters, ground waters, waters from reservoirs, taps, wells, and the like, with analyses attached, served to illustrate in an instructive and comparative way the characteristics of the public water supplies of Massachusetts. Some of the more obvious practical results of the scientific investigations of the Board were shown in the annex pavilion by means of the statistics of advice to cities and towns, illustrating the services already rendered by the Board to the citizens of the Commonwealth; and also by the bromide enlargements of photographs of sewage fields actually in operation at Framingham and Marlborough; drawings of the new municipal sand filter for the city of Lawrence (since successfully placed in operation); and drawings and plans of the Metropolitan sewerage systems.

Besides these things, the Department of Food and Drug Inspection made a showing of its methods and results, prepared by Dr. Worcester, the analyst, and Dr. Abbott, the secretary of the Board.

Instructive models of *trichina* (the pork-worm) and charts bearing upon trichinosis in Massachusetts were also on view, having been prepared under the direction of Prof. E. L. Mark of Harvard University.

The general work of the Board was exemplified by maps and charts illustrating the geographical and seasonal distribution of the various diseases, together with many phenomena of vital statistics, prepared by Dr. Abbott, the secretary of the Board. Investigations of epidemics were illustrated by maps and diagrams of a high order of mechanical excellence; and important laws of change in the quality of natural waters, worked out by the experts of the Board, were described in simple and convenient terms. An attendant was constantly on hand as a guide to visitors; and a printed description of the entire exhibit facilitated its study.

Without disparagement of the exhibits of other States, it may fairly be said that the exhibit of the Massachusetts State Board of Health, taken as a whole, was the most extensive and the most important display of sanitary science made at Chicago. It is therefore gratifying to record, in conclusion, the fact that this exhibit won the highest award given, both for general excellence and for special sanitary investigations.

Respectfully yours,

(Signed) W. T. SEDGWICK.

*CHARITIES AND CORRECTIONS.*

Following the same course which was taken in most of the departments under the supervision of the Board, its members invited a number of men and women interested in the subject of charities and correction to meet at their office in the Sears Building for the purpose of forming an organization by means of which the best possible exhibit could be made in Chicago of this all-important department of public and private work.

This meeting resulted in the appointment by the Board of the following committee to co-operate with it in its endeavors to make the representation of the Commonwealth creditable and of benefit to the State: Dr. Richard L. Hodgdon, Mr. C. W. Birtwell, Dr. W. M. Bullard, Mr. James H. Lewis, Hon. Robert Treat Paine, Mr. Thomas F. Ring, Miss Zilpha D. Smith, Mr. William W. Wilde and Mr. Stephen C. Wrightington.

On Feb. 1, 1892, after the death of their chairman, Dr. Hodgdon, Mr. George W. Johnson and Col. Henry Stone were added to the committee.

On June 17, 1892, Mr. Joseph Lee was chosen secretary of the committee and placed in charge of the work assigned to them.

In calling attention to Mr. Lee's report, which is hereto annexed, the Board takes great satisfaction in being able to say that there was no exhibit in this department which awakened a greater interest, was more favorably commented upon, or was the subject of greater study than was that brought together through the energies of this committee, and the Board feels that great praise is due to the secretary, Mr. Joseph Lee, for the enthusiasm and interest which he brought to his work.

*Massachusetts Board of World's Fair Managers, Boston.*

DEAR SIRs:—At your request I beg to hand you herewith my report as secretary of the sub-committee appointed by you to have charge of the exhibit made by the Commonwealth in the Department of Charities and Correction at the World's Columbian Exposition.

Massachusetts sent fifty separate exhibits in this department, many of which consisted simply of a book of reports. On the other hand, many were complete and elaborate.

The work of the committee was of two sorts: first, stimulating the various societies and institutions in their department, whether public or private, to send exhibits, and giving them advice in the matter; second, the preparation of a general view of the charities and correction of Massachusetts.

The first work to be done was to get as complete a list as possible of the charitable and correctional societies of the State. This could be partially obtained from the report of the State Treasurer and from other sources, but to make the list complete the facts had to be gathered by the committee for itself. For this purpose letters were sent to the secretaries of



the various associated charities societies of the State, a circular also being sent to the overseers of the poor in every town and city in the State, a second and third letter and circular being sent when answers were not obtained. As fast as the names of societies came in there was forwarded to each a circular giving all necessary directions and suggestions as to how to make an exhibit. With this circular was sent the official circular issued by the Charities and Correction Bureau at Chicago, and also a number of printed questions, the answers to which were needed for certain statistics to be used in the general central exhibit which the committee was preparing. For this latter purpose, that of gathering statistics, it was afterwards found that postal cards with a paid reply were considerably more effective, and these were used for gathering certain of the statistics in regard to our public institutions which were not to be found in any of the published reports.

*EXHIBITS OF SEPARATE INSTITUTIONS.*

The remainder of the work in regard to separate institutions, public as well as private, consisted in letters and interviews urging them to exhibit, and, in almost every case, in suggestions as to what the exhibit should consist of. The main stress was laid upon obtaining representative exhibits, supplemented by as large a number as possible of minor and less complete exhibits. Thus very complete exhibits were obtained of the McLean Hospital, of Mrs. Shaw's Day Nurseries, of the Boston Overseers of the Poor, the Children's Aid Society, the Women's Reformatory Prison, the Lyman School for Boys, the St. Vincent de Paul Society, and of many other representative institutions. Perhaps the exhibit of the Boston City Hospital stands at the head of these representative exhibits. It should be added that the exhibit made by Mrs. Johnson, the superintendent of the Woman's Reformatory Prison, was perhaps the

most successful exhibit from any State or country in this department, in combining an appeal to the popular attention and understanding with the setting forth of the essential principle upon which the institution is carried on.

*THE CENTRAL EXHIBIT.*

The main work of the committee was in the preparation of the central exhibit, showing our system of correction and of public relief, and giving a bird's-eye view of the correctional work of the State and of the charitable work, both public and private, and also of the condition of the classes dealt with.

How far the committee was successful in this work so far as effectiveness of presentation and the importance of the questions dealt with is concerned can be judged by an examination of the exhibit. This central exhibit contained:—

Eight maps of the State, showing the distribution of institutions, public or private, of savings banks and savings, of co-operative banks, of crime, pauperism, the tramps, and of associated charities societies, and showing the policy of the several towns in giving outdoor relief.

One hundred and twelve charts, giving such other facts and statistics as seemed, after most careful consultation with experts of all sorts, to be the most interesting and important among those obtainable; a very complete account, supplemented by statistics, of the entire work of the Department of Outdoor Poor of the State Board of Lunacy and Charity.

If special subjects are to be mentioned, it may be said that the greatest stress was laid upon the question of outdoor relief and upon the question of the boarding out of the children in the charge of the State.

In selecting and presenting these subjects no attempt was made to glorify the Commonwealth of Massachusetts. It was felt that the State could very well afford to stand on its own

merits, and that the statistics could be given their full value only by being selected and compiled with a sole eye, first, to what was true, and, second, to what was interesting and important.

A question of essential importance in judging the value of the exhibit is as to the accuracy of the facts presented, and this question cannot be judged without a knowledge of the sources from which they were drawn and the care with which those sources were used. The facts were gathered from the various reports of the State Board of Lunacy and Charity, the Prison Commission, the reports of the larger public institutions, the Bureau of Labor Statistics, the reports of the Savings Bank Commissioners, and from other printed sources, and, where necessary, by sending the postal cards above mentioned. The statistics collected by the latter method of sending postal cards cannot in all cases be considered of great value. In regard to the public statistics so obtained, they are believed to be accurate; but in regard to private institutions the statistics remained incomplete, and are probably not wholly correct. It is thought that the remaining statistics are as correct as they could be made. Experts were consulted both within and outside the public departments and institutions, and in every case in which the statistics seemed likely to be misleading or erroneous the matter was carefully investigated. In a large number of cases the figures in the reports were not used, as not being sufficiently correct, and a great deal of labor was expended in getting at the facts more accurately.

Another point which will not appear to those who did not attend the Exposition is the care that was taken in making the exhibit attractive. Much time and thought was spent upon the apparently trivial but really important matter of the selection of colors for backgrounds, arrangement of signs, etc.

The more statistical portion of the State's exhibit in this department, upon which much time and great care were spent,

received great commendation from experts and general and high praise from all those interested in the subjects to which they related. Two of those who expressed the highest admiration for the work in Massachusetts in this department were Mr. Frederick H. Wines, of the United States Bureau of Labor Statistics, and Mr. Hart, secretary of Minnesota State Board of Charity, who has done so much in producing some sort of order out of the chaos of the statistics of the various States upon this subject.

Respectfully submitted,

(Signed) JOSEPH LEE.

*MASSACHUSETTS IN OTHER DEPARTMENTS OF  
THE EXPOSITION.*

Consideration has already been given to exhibits which, having been made at the expense of the Commonwealth, may justly be termed "State exhibits." The contributions made by private citizens of Massachusetts have likewise, surely, a place in a report having to do with the part which the State played in the World's Columbian Exposition of 1893.

That the account of such contributions should be worthy of the enterprise and energy which reflected so great credit upon the State, the Board invited certain gentlemen, familiar with the subjects to be treated, to furnish chapters for this report.

To these the Board invite special attention, for through them the citizens of the Commonwealth will be able to form an adequate idea of the value and extent of exhibits from the State. They surely bear testimony to the high rank which Massachusetts took in this great competition between the States of the Union and foreign governments.

Quality and not quantity was the basis of the work of preparation in the office of the Board of Managers. The Exposition of 1893 was not a case which made necessary the acceptance of any undesirable or undignified exhibit from fear that space would be unoccupied.

Rather did it happen that the best and worthiest exhibitor was compelled to accept an allotment which in many cases proved all too small within which to install his contribution. Far better was it for the citizen of the State to be impressed with the worth and value of each exhibit than that he should carry away with him an impression of quantity alone. This method the Board believe resulted in exhibits and displays each one of which reflected credit upon the exhibitor, bearing testimony to his intelligence and to his perseverance, while massed together they surely served to place the Commonwealth well in the front rank among her sister States.



*MASSACHUSETTS IN THE DEPARTMENT OF MACHINERY  
AT THE WORLD'S COLUMBIAN EXPOSITION.*

BY MR. FRANCIS E. GALLOUPE.

The exhibit of Massachusetts in the Department of Machinery was represented by the application for space from one hundred and seventy-eight firms and individuals. The applications were received from thirty-eight cities and towns throughout the State, those from Boston, as the headquarters of so many business firms, of course, comprising the largest number from any single locality. The remaining applications came principally from the leading manufacturing localities near the eastern coast, although the western towns of the State were also represented.

Of the above number of applications, forty-six were not assigned space for their exhibits, and twenty-six more, although assigned space, did not exhibit. The number of firms and individuals therefore actually exhibiting was one hundred and six, of which seventy-nine took awards.

In considering the showing made by Massachusetts firms in this department, a comprehensive idea can perhaps best be obtained by dividing the mechanical exhibit into twelve general groups, which, arranged alphabetically, are as follows: (1) Electric welding; (2) machine tools and metal-working machinery; (3) power-transmission motors and mechanical apparatus; (4) printing presses; (5) sewing machines; (6) shoe machinery; (7) steam engines; (8) steam fittings, pumps and apparatus; (9) the telephone; (10) textile-fabric and clothing-manufacturing machinery; (11) valves, and (12) woodworking machinery. In all these groups the principal industrial establishments of the State were well represented. In two of them, viz., the telephone and electric

welding, the exhibit of Massachusetts was unique. No other State was, of course, able to show anything in competition with either the telephone — that institution demonstrated and permanently established as a necessity of modern business methods, of well-nigh universal use, and of so great public benefit — or the new and radical invention developed and growing into general use, the electric welding machine.

Passing over further mention in detail of the telephone, that wonderful instrument and mechanical device which in the Centennial Exhibition of the United States in 1876 was first shown to the world, it may be noted that the electric welding process is now another unique invention of Massachusetts thought, also employing the great agent of electricity, and although having been developed in the form of a practical machine for several years, yet which was now for the first time shown to the world at the World's Columbian Exposition of 1893. The principle of the electric welding machine having been demonstrated, improvements are being made in details, especially in the designing of the clamps to hold various forms of work in the most convenient manner while being welded by the use of the electric current. These machines and appliances formed a very interesting and instructive exhibit. A machine for welding large pipes was shown, requiring an electric current of 80,000 watts, or equivalent to about one hundred horse power. This machine will weld, in a few minutes' time, the ends of iron pipes six inches in diameter. The application of this process to railroad track construction was shown by specimens of chairs welded directly to the rails, and by a three-way crossing containing six different welds of about twelve square inches each in cross-section. A railroad crossing of rolled steel was shown, welded together so as to form one solid piece. Also the largest electrical weld ever made was shown, having a section of forty-eight square inches.

Apart from these remarkable exhibits, the leading groups

may be stated as those of shoe machinery and machine tools and metal-working machinery. The exhibit of shoe machinery was the product of over thirty manufacturers. Each of a score of processes in the manufacture of boots and shoes was represented by machines of Massachusetts firms. These included the only set of hide-working machinery shown. A duplex hide worker was shown that will simultaneously flesh and unhair, or do either separately, as efficiently as any other machine will do it at two operations. Hard skins, or skins in the batch, can be worked without taking them out of the machine and rehandling. An improved slating machine will slate 1,500 to 2,000 skins per day. Machines for all branches of leather finishing, such as graining, slating, glazing and pebbling, were shown.

For leather measuring two forms of machines were exhibited. The skiving of the edges of leather was done by a machine shown. Another machine for folding the edges of shoe vamps or quarters has become a standard among shoe manufacturers. It turns the edges of leather and cloth for vamps or linings of shoes with great perfection, producing a better finished and fitted shoe than could otherwise be made, and is in use throughout the country as well as abroad.

In the next process the sewing machines continue the manufacture. A closing and seaming machine is fitted with a safe elastic stitch made with two threads, for the purpose of producing strength and elasticity, in the direction of the length of the seam. It may be made as safe when formed from cotton threads as one made from more expensive silk or other threads, as each stitch is fastened and independent. On a three-thread vamping machine, with silk or cotton thread, an operator can do 250 pairs per day, twenty stitches to the inch. A three-row machine uses three needles and two under threads and makes the safe elastic stitch which avoids all friction at the crossing of the upper and under threads, and prevents them from loosening during the wear of the shoe. The seam is pliable, the

stitch of the leather, as in lasting, not causing it to break, and, owing to the manner in which the upper thread is drawn below the surface of the leather, all danger of the ripping of the vamps by friction and chafing or by wearing off the tops of stitches is avoided. Work requiring a zigzag stitch or over-edge seaming is done by an overseaming machine forming a stitch of the same characteristic and which can be run at a high rate of speed, for ornamental shoe linings and on all kinds of cloth and leather materials. The thread is taken directly from spools, without necessitating the winding on bobbins.

Machines which cut the fabric, work and finish button-holes complete, were exhibited, which, with the improvements made both in the construction of the machines and in the work done, makes the exhibit in this branch of shoe machinery noteworthy. On one of these machines the number of button-holes completed by a single operator was 10,010 in a period of nine hours and fifty minutes' time. A button-sewing machine was also exhibited. Other machines space and punch the holes and put in the eyelets. A tubular rivet-and-stud power machine was shown that puts books and studs in shoes at the rate of ninety a minute. Another machine is a sole moulder that shapes the bottom. A sewing machine, with lock stitch, sews the out-soles and is used for welt sewing or inseaming.

Of lasting machines several were exhibited. One of these takes the stretch out of the leather and lasts all kinds, sewed, nailed or pegged. By another method the shoe is lasted on a jack, the upper being drawn over with the pinchers, as in hand lasting. On bringing the shoe upon the jack in contact with the machine the mechanism is automatically started, which drives the tacks. The jack is so arranged with compound motions that each portion of the shoe may be turned so that the tack can be driven to best advantage.

There was also shown an entire system of manufacturing shoes by machinery. Machines sew the welt, using both a

curved awl and needle, the process following closely the hand method. The thread passes through hot wax in a cylinder, at the rear. The outsole is laid with cement, trimmed to the shoe, a channel being cut at the same time. The outsole is then fastened to the welt by a rapid stitcher, as in hand-sewed shoes. Upon one machine a horn is used having a shape which permits it to enter any shoe, and the sewing is done without changing the shape of the shoe or causing it to wrinkle. The thread is waxed by running through hot wax, and a device returns the surplus to the reservoir without waste and causing the sewing to be perfect. Other improvements for heating the wax and in the rotary whirl attachment prevent breakage of parts and produce perfect work. The machine may be so speeded that expert operators can sew about nine hundred pairs per day. Old and new and improved rapid metallic screw fasteners and wire grip machines were shown; also channel flap laying and beating-out machines. By an automatic leveller the ball of the shoe can be made with absolute uniformity.

Several heel nailing and trimming machines were exhibited. A slugging machine was shown which drives sixty-five kinds of slugs, of solid steel or brass wire; an automatic clinch nailing machine, which does more varied kinds of work than almost any other. The nails are driven and clinched at the rate of three hundred per minute. Another machine compresses, attaches and trims the heel. Edge trimming, edge setting and sand-papering machines were shown. Buffing, burnishing and bottom polishing, upper cleaning and monogram machines complete the work, with the minimum of handling.

Twin treeing machines for holding boots without causing wrinkling in the shank, with a full set of treeing tools of wood, glass and metal sticks, were exhibited. The shoe machinery showed progress, improvement and efficiency both



in construction, speed and work, and the exhibit shows Massachusetts to be still in the lead in this branch of industry. The inventors of the State have produced most of the machinery used in every special branch of the manufacture of shoes, and set the example to those in other parts of the country where the manufacture is carried on, of how to best attain the adaptation of machinery to the varied and often intricate and difficult processes required in this branch of manufacture.

Machine tools and metal working machinery form the leading exhibit from the State next to that of shoe machinery, both in the extent and variety of the mechanical industries represented. In emery wheels was exhibited perhaps the largest and most complete assortment ever shown. Some fifty thousand wheels were in exhibit, varying in size from one-eighth inch to thirty-six inches in diameter and from one-thirty-second inch to six inches in thickness. They were of every conceivable shape and for every purpose. Machines in great variety were shown in operation, for all purposes of grinding, edge and surface grinding, shaping, exterior and interior work and with single and double wheels. An universal cutter and tool grinder will grind cutters of all kinds, mill reamers, twist drills, taps, lathe and planer tools, and, indeed, every tool used in the machinery business. With each machine is supplied eighteen wheels, of different shapes, which are mounted on an iron collet, which is drawn into a taper protecting spindle that prevents all chance for emery to get to the spindle or into the bearings, and causes the wheel to run perfectly true, although the wheels are often changed. A friction countershaft connects with the grinder, arranged with five changes of speed. For small internal grinding a speed of 20,000 revolutions per minute can be obtained. Elastic wheels were shown in regular use, which were superior for saws, and would cut free, without ease hardening.



In twist drills a fine display of regular drills, reamers, etc., was made. Special drills were made with a copper tube soldered into a small spiral groove, the object of the tube being to force the oil through to the point of the drill. Some very large three-grooved reamers, used in cored holes, were supplied with three spiral grooves, instead of two as in twist drills, in the middle of the outside flat of which was milled a shallow groove which divided the outside bearing surface into six parts, without circular clearance or backing off. These tools are found to work well in cored or rough-drilled holes. Other drills have a hole drilled crosswise through them, from one groove to the other, where the grooves join the shank. This hole is connected with a hole passing lengthwise through the center of the shank. The shank of this drill is short and large, and is threaded externally to fit the end of a steel tube forming the shank proper. The oil for lubrication passes through the tube and the chips pass through the holes in the drill and out through the tube. This drill is used for deep-hole drilling. Milling cutters are also shown, made in two parts, which interlock, and are packed apart by washers to maintain the size.

A very large display of general machine tools was made, comprising an automatic cam-cutting machine; four universal milling machines; two automatic gear cutters; six plain milling machines and a cutter grinder; a 15-inch turret lathe, with automatic chuck; five cutting-off machines for 2 and 6 inch stock; an universal grinder; eight lathes from 14 to 22 inches swing; a 26-inch planer; a 26-inch lathe; six upright drill presses; five lathes, and a radial drill press. One of the milling machines can take a cut of cast iron one-sixteenth inch deep and 14 inches wide at the rate of 14 inches per minute. A special vise is used with these machines, which can be instantly adjusted to take work of any size from one-fourth inch to five feet, holding the work close to

the platen. A new feature in a lathe was the use of plain pulleys for the feed belt and three pairs of gears inside the head, instead of the usual feed cane, for driving the stud and lead screw. The driving gear can be moved along a shaft upon a feather so as to drive any one of the spur gears, thus quickly changing the pitch of screws to be cut without changing the train of gearing.

Peenliar and ingenious machines for rolling balls, cylinders, screws and a variety of irregular shapes from the hot metal were exhibited. A full set of reciprocating tools, operated by electricity, for drilling, cutting, molding and carving all kinds of stone, was shown, and for riveting boilers and calking ships. Also tools used in watch making were exhibited.

In textile machinery, full sets of machinery were exhibited in operation, special notice of which is passed over in this place.

Power-transmission apparatus was represented by rolls of seamless-stitched, frictioned-surface rubber and leather belting and by friction cone countershafting, an apparatus by which machines, such as grinders, electric motors, etc., may be driven direct from the engine shaft or other motor without the use of the ordinary belts.

Steam engines from the manufacturers of the State were also shown.

In the groups of steam fittings and apparatus may be mentioned steam pumps; also inspirators and ejectors in operation for the supplying of water to locomotive and stationary boilers; also metallic packings. A beautifully finished assortment of nickel-plated steam and water fittings was exhibited. Cast-iron fittings, valves and an extensive variety of expansion joints were displayed; also wrenches and a tapping machine for tapping street mains from 4 to 24 inches in diameter while under pressure. Fire hydrants and feed-water heaters, condensers, etc., were also shown.

Of valves there were a great variety of pop and other safety valves, for all kinds of boilers; noiseless safety valves for locomotive and marine boilers, relief valves for pumps and stand-pipes, and pressure and vacuum gauges. Steam engine indicators were exhibited; also a feed-water regulator used in connection with a pump governor. This device maintains automatically the desired height of water in a steam boiler. The difference in expansion between a brass pipe and an iron rod operates to either start or stop the steam pump.

A large number of valves, gates and cocks, in brass and nickel, were shown, from small to very large sizes, and straightway water and steam valves. Special features of these were renewable bronze seats, the outside screw and yoke, the by-pass arrangement, the ribbing of the body of the valve, to prevent its being affected by the expansion, in pipe lines, and a self-packing feature on the spindle by means of which the valve may be packed when open, with pressure on. Flanges were shown, plain and tongued and grooved, and either bolted to valve or as flange unions. Valves for use as boiler stop valves and for both high and low pressure were shown in actual use. The sizes varied from one-fourth inch to 48 inches, the largest shown being a 24-inch valve. Ammonia valves for mechanical refrigeration were also exhibited. The standard flanges are now being chased, instead of tapped, to obtain a more perfect thread. For plain packing they have a raised surface inside the bolt holes; other flanges are grooved for packing. The heavy valves show an improvement in quantity and disposition of metal to resist the constantly increasing pressure to which modern practice tends.

The woodworking machines formed another important class. Some fifteen of these were exhibited, among them a new double surfacer and sizer for planing all kinds of bill timber

perfectly square, bradding heavy girders and a variety of mill-work. Two pieces may be dressed at once and on three sides each, by using a center-guide. The machine can be changed while running by means of a power hoist, so that timber of different sizes can be planed without sorting, or two pieces of different thickness run through at the same time. Other machines comprised an automatic floor board boring machine, a 38-inch band-saw machine, a heavy pattern self-feeding saw table, double iron adjustable saw table, a circular resawing machine, an improved jointing and facing machine, new cabinet surface planer and a four-roll molding machine. A 24-inch single shop surfacer is especially adapted for a strong feed and fine finish. The bed moves up and down by means of elevating screws of large diameter, upon gibbed ways arranged to give great steadiness. A new automatic knife grinder, with power feed, for wet or dry grinding, is very compact, has an absolutely straight and true edge and runs without jar.

The electrical forging of metals formed a most novel and comprehensive exhibit. Appliances for forging, welding, rolling, brazing and for rolling balls and taper pins were shown in regular operation, all being operated by an electric motor. A large drop forge was used for making horseshoes. A large electric heater, having several metal holders, is used for heating the bars and for welding tubes or pipes. Pieces of different diameters and lengths are heated at the same time, the heater dividing the current automatically by a governing rheostat, or regulator. Iron, steel or copper can be heated easily and quickly. Four holders, close to the rolling machine, keep the operator supplied with heated rods. The heat is comparatively mild and the portions beyond the immediate effect of the electric current are not heated, and the metal thus heated is not oxidized or burned. A portable heating apparatus is used for heating rivets for building construction, or for use in isolated places. A pail containing water is connected with a conductor

of an electric current, while a pair of tongs is connected with the other pole. The current may be obtained from an electric-light or trolley wire, or other source of electrical energy. On dipping a piece of metal held by the tongs in the water, the circuit is completed and the metal at once heats, the action being quite rapid. It may be melted in this manner, and iron or steel is not injured in the process, as a surrounding jacket of hydrogen is generated and envelops the metal, which protects the metal from the action of the oxygen. This exhibit received a medal and diploma for originality, rapidity in placing and removing the metal to be heated and adjusting the heating devices to varying sizes, shapes and lengths, and for original and superior construction and apparatus.

Printing presses and sewing machines were represented by manufacturers of the State.

From what has preceded it has been shown that the mechanical industries of the State are creditable and compare favorably with those of any other State, and in several novel and important particulars are unique and exclusive in their mechanical products among the exhibits.



*MASSACHUSETTS IN THE DEPARTMENT OF ELECTRICITY  
AT THE WORLD'S COLUMBIAN EXPOSITION.*

BY WILLIAM A. HOVEY.

At the Centennial Exhibition in Philadelphia in 1876 the electrical exhibits were not sufficiently numerous nor of sufficient importance to warrant a separate department, and the single item of importance in the development of the electrical industry as connected with that exhibition is the fact that there the speaking electric telephone was first publicly shown. Eight years later, in 1884, an exhibition was held in Philadelphia devoted exclusively to electricity. The progress in the meantime had been marvellous. Here were shown the electric light, both arc and incandescent, the telephone in operation with a working central office, dynamos of many forms, motors, incipient street railway operated by electricity, multiplex systems of telegraphy, storage batteries, and many other ingenious and interesting applications of electricity, all practically new.

It was commonly supposed that the nine years between 1884 and 1893 had produced an equal crop of things new and startling in the electrical field that would burst upon the world at the World's Columbian Exposition, but such did not prove to be the fact. Great improvements had, during that period, been made in all directions; electric street railways, shown in embryo in 1884, came into general use during the period named; in electric lighting great progress had been made, and also in electric power for many purposes; storage batteries had come into use to a limited extent for special purposes, and the telephone had been vastly improved and was working over distances never dreamed of in the earlier days. Still, with some few exceptions, notably electric welding and forging, and the use of electricity for the development of heat, the



World's Fair had, in the Department of Electricity, less to show in the way of absolute novelty than was generally looked for.

From the United States there were, in all, four hundred and seventy-eight exhibits. In many instances the same exhibitor made several exhibits, so that this number greatly exceeds the total number of United States exhibitors. The number of exhibitors from Massachusetts was nineteen, and of this number several had exhibits which were not in the full sense electrical, being in the nature of supplies required and used in electrical industries. Of this sort were exhibits of wire, of iron poles for carrying wires and cables, of specially designed trucks for electric cars, and of pumps operated by electric wire.

But while the number of exhibits in the Electrical Department from Massachusetts was relatively small, they included some of the most important. That made by the American Bell Telephone Company, a Massachusetts corporation, which has been built upon inventions made in Massachusetts, was one of the most notable. It was installed in a beautiful building of Greek design, admirably adapted for the purpose. Here was shown a complete set of instruments, from the earliest beginnings of the art, through all the stages of development down to the perfected instruments of the present time. Here also were to be seen in actual commercial operation a complete central office equipped with the latest and most improved switchboard, with all the necessary auxiliary apparatus: a long-distance station, where opportunity was given the public to test the line to New York; diagrams and maps showing the growth and present state of the business, and many interesting specialties in the way of the telephone use with which the public at large is not generally familiar.

The General Electric Company of New York, which made perhaps the largest exhibit in the building, included that of

what was formerly the Thomson-Houston Company, whose works are at Lynn, in this State. The two companies having combined, the exhibit of machines and instruments made in Lynn was not kept apart, and cannot therefore be separately described. But those who took the trouble to examine carefully found that a generous proportion of all that were shown came from Massachusetts.

The Electric Welding Company, a Massachusetts enterprise, based upon the inventions of Professor Thompson, a citizen of this State, made a most interesting and creditable exhibit, showing their machines in operation. As this was the first great exhibition at which this new and surprising process had been shown, it attracted very general attention.

The same may be said of the exhibit of the Electric Forging Company, also a Massachusetts enterprise. Every afternoon crowds could be seen gather round the novel forge, where the piece of iron to be shaped upon the anvil, instead of being put into the fire, was simply dipped in what appeared to be a pail of cold water, where it was in an instant brought to a white heat.

In the group which included heating and cooking this State was well represented.

But, in a larger and broader way, Massachusetts and what she has done for electrical science and electrical industries was very much in evidence. At the main entrance of the Electricity Building was a statue of one of her most distinguished sons, drawing the lightning from the clouds. Franklin had, as he deserved, the foremost place of honor as one of the earliest explorers in the electrical field. Nor was it forgotten that to another son of Massachusetts, Professor Morse, the world owes the simple yet effective device which has made the enormous development of the telegraph system of the whole world possible. The exhibit, made by the Western Union Telegraph Company, of his early experimental instruments was one of the most interesting and instructive in the department.

There is one man, whose death during the progress of the Exhibition was sincerely mourned, of whom a word should be said. The little exhibit of incandescent lights and of an operative electric railway model, dating back more than forty years, was an effective illustration of the fact that a man may miss the reward of invention by being too far in advance of his time. Such a man was Moses G. Farmer, to whom the world is indebted for the first fire-alarm system ever put in operation, that of the city of Boston, who made many other valuable and important inventions, but who was always reaching out for something for which the world was not ready. To the world at large he is, and will be, but little known, but those who are familiar with electrical discovery and invention during the years that intervened between 1850 and 1875 will always hold his name in respected and affectionate remembrance.

*MASSACHUSETTS IN THE DEPARTMENT OF ETHNOLOGY  
AT THE WORLD'S COLUMBIAN EXPOSITION.*

By Miss F. H. MEAD.

It is appropriate, in connection with a report of the part taken by the State of Massachusetts in the Exposition, to call attention to the honor conferred upon her by placing one of her citizens at the head of the Department of Ethnology. Prof. F. W. Putnam, a descendant of some of the oldest families who came from England and settled in Salem, Mass., in the first half of the seventeenth century, is in every sense of the word a son of Massachusetts. From his position as professor of American archaeology in Harvard University, and from the reputation he has gained by life-long researches in the natural sciences, Professor Putnam was chosen to fill the position of chief of the Department of Ethnology at the time of the very conception of the department. It is well that his scientific knowledge is of the broadest character, as the department over which he was called to preside far exceeded in scope the title given to it by the Exposition classification, and included all the subdivisions of anthropology as well as natural history. By the special request of Professor Putnam, his department building was named the Anthropological Building, and the motto "Man and his Works" was placed over the main entrance. This was considered the most appropriate term to cover all the varied exhibits in the building.

As might be expected, this building was the favorite rendezvous for scientists from all parts of the world, and many were the expressions of wonder and commendation bestowed upon its contents. Here were many important and interesting exhibits from the States, from scientists and scientific

societies, from individuals and from foreign countries; but what is of special interest in this connection is the fact that the State of Massachusetts was very closely connected with three of the most scientifically important and generally attractive sections in the Anthropological Building.

*LABORATORIES OF PHYSICAL ANTHROPOLOGY.*

A large portion of the northern gallery was occupied by the Laboratory of Physical Anthropology, which was universally pronounced to be remarkably complete and scientific in its character. While this laboratory contained contributions from scientists and scientific institutions the world over, Massachusetts, through her educational institutions, was the essential factor. When the plan of this laboratory was first conceived, Professor Putnam selected Dr. Franz Boas,—at that time professor of anthropology in Clark University, Worcester, Mass.,—as the most able man to place in special charge of this whole section. As the plans were gradually developed the laboratory was divided into five sections, anthropological laboratory, psychological laboratory, neurological laboratory, development room and the anthropological library. One entire room in this section was occupied by the exhibit of the Hemenway Gymnasium of Harvard University, in charge of Dr. D. H. Sargent, showing researches in the anthropometry of college students. The composite statues made under Dr. Sargent's direction, from a long series of measurements upon students, representing the typical or average American student, male and female, formed the chief objects of interest and attraction in this room. Harvard College also exhibited psychological apparatus and photographs of laboratory equipment. The Harvard Medical School, through Dr. Bowditch, exhibited anthropometric instruments, the results of investigations on the growth of children in



Boston, scientific apparatus, and a series of large composite photographs. Dr. W. F. Whitney was also an exhibitor. The Peabody Museum at Harvard, of which the chief of the department is and has been for twenty years the curator, contributed anthropological instruments, skeletons of races, crania, and casts of heads of Indians. Dr. H. Nichols showed optical apparatus; Dr. C. W. Fitz, psychological apparatus; and Dr. Hugo Munsterberg exhibited Aeby's wire model of the brain.

Clark University was also well represented in the Laboratory of Physical Anthropology. In the division of Neurology was the exhibit of Dr. C. F. Hodges, which consisted of charts illustrating fatigue of the nerve cells. In the division of Anthropology was the large and valuable collection of skulls from North America, New Guinea and the Sandwich Islands, belonging to Dr. Franz Boas; also the important statistics collected and tabulated by Dr. G. M. West on the growth and development of children in Worcester, Mass. Here also were the charts and diagrams illustrating the anthropometry of the North American Indians, based upon the measurements of 17,000 individuals taken by the seventy volunteer assistants who were sent out by Professor Putnam to gather these statistics among the various Indian tribes of North America.

Amherst College contributed to the laboratories by the exhibit of Prof. E. Hitchcock, which consisted of anthropometric charts showing the effect of physical culture upon the growth of students in Amherst College. Wellesley College was represented by photographs of laboratory equipment, and also by the important exhibit of Miss M. Anna Wood, who contributed anthropometric studies from the Gymnasium of Wellesley College. Smith College, of Northampton, Mass., was an exhibitor, through Prof. J. H. Pillsbury, in the division of Psychology.

The State Board of Health of Massachusetts contributed an exhibit of anthropometric instruments and statistics.



The Boston Normal School of Gymnastics showed diagrams and instruments.

In the division of Psychology Dr. B. J. Jeffries of Boston exhibited optical apparatus, and Richie & Sons of Brookline showed scientific instruments.

From the foregoing statements it will be seen that Massachusetts has reason to be proud of the active part taken by her institutions and her cultured sons and daughters in this most purely and severely scientific section in the Anthropological Building.

*CENTRAL AMERICAN SECTION.*

The Central American section was one of exceeding interest and importance to students of Central American archaeology on account of the vast amount of new material exhibited there.

The ancient ruined cities of Yucatan and Honduras, with their massive stone structures, symbolic sculptures and hieroglyphic inscriptions, were extensively represented. Fac-simile reproductions, made from the molds taken during two seasons' exploration by the Peabody Museum Honduras Expedition of the stone idols or monoliths, stone heads and bands of hieroglyphs in Copan and Quirigua, occupied a prominent position in the section. Professor Putnam, director of these expeditions, appointed as the acting head of the first year's expedition to Copan Mr. Marshall H. Saville, a student assistant in the Peabody Museum; and the second year, Mr. John G. Owens, a student in Professor Putnam's department of the Harvard Graduate School, was appointed to take charge; and it is sad to report that this promising young scientist lost his life by fever while on this expedition.

The recent work in Yucatan by Mr. E. H. Thompson, a Massachusetts man and United States Consul to Merida, acting as assistant to Professor Putnam and the Peabody Museum, was shown partly within and partly outside the Anthropological

Building. Ten thousand square feet of molds were taken by the expedition under his charge, during fourteen months of hard labor and serious risk of life in the dense, malarial jungles of Yucatan. The principal sections chosen as characteristic examples of the architecture and sculpture of these magnificent ruined temples were the "Portal of Lebna," with dimensions of twenty-five feet in height and forty feet in width; "The Straight Arch of Uxmal," twenty-seven feet high and twenty-two feet wide; the famous façade of the "Serpent House;" and three different sections from the "House of Nuns." Full-size reproductions of these sections were made in staff and erected on the grounds just north of the Anthropological Building. Every one who visited the Exposition will recall the weird effect produced on the imagination by these old monuments of an unknown past standing in stately grandeur amidst all the magnificence and beauty that landscape art and architecture of to-day could devise.

A collection of 162 large photographs taken by the Peabody Museum expeditions, the famous Charnay casts, and the well-known Maudsley photographs, as well as casts from Guatemala contributed by the Berlin Museum, helped to make this section an inexhaustible store of treasures to the student and a source of wonder and delight to all.

#### *SOUTH AMERICAN SECTION.*

Another large and extremely popular section in which Massachusetts was an important factor was that of South America. One division of this section was known as the department exhibit from South America. This was wholly independent of the various official exhibits from South America, and was brought together by original work and exploration carried on under Professor Putnam's direction. These collections occupied about 10,000 square feet in the Anthropological Building

and comprised a fine display of ethnological and archaeological material from Peru, Chili, Bolivia, the Island of La Plata and the region of the Upper Paraguay, as well as full sets of garments and a large number of pottery vessels used by the Quichas of the interior of Peru. Perhaps the most popular exhibit in the whole building was one feature of this division, known as the "Ancon Graveyard." Mr. G. A. Dorsey, a student in Professor Putnam's department of the Harvard Graduate School, was the man whom Professor Putnam chose to collect the larger part of this material from South America, and he was in charge of the entire South American section in the building. Mr. Dorsey conceived the plan of reproducing a portion of the old burial place at Ancon to show the method of burial at that place, where one hundred graves were opened under his direction. This plan was carried out by setting up the mummies in a natural position in a foundation of sand and surrounding them with the objects found with them in the graves, such as pots of beans, bags of peanuts, pottery vessels, work baskets furnished with materials for sewing, and various other objects from which we learn the customs of these early peoples of Peru. This unique exhibit was enclosed by a railing which was always surrounded by a crowd of curious and interested visitors.

In addition to the part taken by Massachusetts in these three large sections of the department, there were several individual exhibits which are worthy of mention as belonging to the citizens of the Commonwealth.

Dr. Franz Boas has already been mentioned in connection with the section of Physical Anthropology, but in addition to this he was chosen by Professor Putnam to superintend the collecting of the large and interesting exhibit from the northwest coast of America which was to be seen in the Anthropological Building. This collection represented the several tribes of native peoples of British Columbia, and included many

curious masks, idols and other objects of religious significance, as well as totem poles, with their symbolic carving, native canoes, wearing apparel and articles of household use. Dr. Boas was also instrumental in bringing the fourteen Quackuhl Indians from Vancouver Island. These Indians furnished the ethnologists a store of interest, and were a great attraction to the visitors by their strange songs, dances and ceremonies, which were carried on each day in the native houses and occasionally in the evening on an illuminated float in the lagoon.

Mr. C. C. Willoughby, acting as assistant in the Peabody Museum, carried on a very thorough and scientific exploration, during the seasons of 1891-2, in the Penobscot valley in Maine. The results of the exploration of one of these burial places were displayed in the Anthropological Building, and those of another furnished the material of the Peabody Museum exhibit in the education section of the Liberal Arts Building. Both of these collections were artistically arranged by Mr. Willoughby with the idea of illustrating the Peabody Museum method of exploration.

Miss Alice C. Fletcher, holder of the Thaw Fellowship in the Peabody Museum, furnished ethnological material from certain Indian tribes, and also exhibited her work on Indian music, which represents the results of her twelve years' study on this subject among the Indians.

Zelia Nuttall, honorary assistant in the Peabody Museum, brought together a collection of Mexican archæology for the department. This consisted chiefly of the large charts illustrating her reproduction of the ancient Mexican calendar system, painted shields, and photographic reproductions of a portion of Sahagun's manuscript.

The Massachusetts members on the regular staff of assistants in the Department of Ethnology were: Dr. Franz Boas of Worcester, chief assistant; Miss F. H. Mead of Cambridge, secretary; Mrs. S. F. Fletcher of Cambridge, stenographer

and clerical assistant; Mr. G. A. Dorsey of Cambridge, superintendent of the Section of South American Ethnology and Archæology; Dr. G. M. West of Worcester, assistant in the Laboratory of Physical Anthropology.

In addition to these regular assistants, several young men from among the students of Harvard and Clark Universities were sent out by Professor Putnam to collect anthropological statistics and ethnological material from the different Indian tribes during the seasons of 1891-2.

It must be remembered in reading the foregoing statements that this is not intended as a report on the Department of Ethnology, but simply as a brief summary of that portion with which Massachusetts was closely connected.

*MASSACHUSETTS IN THE TEXTILE EXHIBITS AT THE  
WORLD'S COLUMBIAN EXPOSITION.*

BY HENRY G. KITREDGE OF BOSTON.

Massachusetts has always shown herself willing and ready to contribute her share in any demonstration of a State, national or international character that will redound to her own or to the national industrial advancement. Her policy has been always liberal and patriotic, and her people have been inspired with her greatness. In nothing is she more conspicuous than in her mechanical industries and in the perfectness of her factory system. In these particulars she is the acknowledged leader among the States. The spirit of her enterprise was manifest in these particulars to a very marked degree at the World's Columbian Exposition, and no more so than in her textile exhibits, especially woollen and cotton. In the amount of capital invested in these two industries she stands at the head of all the States. Over \$210,000,000 are thus invested, or over thirty per cent. of the total capital invested in these industries in the United States.

In the silk manufacturing industry Massachusetts does not occupy an advanced position, and in this particular she is behind New Jersey, New York, Pennsylvania and Connecticut. The larger portion of the silk manufactures of the State is the product of mills located in the valley of the Connecticut River. At least two-thirds of the capital invested in the manufacture of silk in Massachusetts is in the Connecticut valley. Over eighty-six per cent. of the machine twist and sewing silk made in the United States is the product of Connecticut and Massachusetts mills, and of this product the latter produce nearly thirty-seven per cent. Such being the case, it was quite consistent with Massachusetts' silk exhibit at the World's Fair



that it should be conspicuous for the excellence of its display in these goods. There were only four silk-goods exhibits at Chicago from Massachusetts, but these represented invested capital to the extent of \$1,850,000, or almost exactly one-half of the capital so invested in the State. No other State made a larger proportional representation of its silk manufacture. Two of these exhibits were of mills making an international exhibit for the first time, and two were of mills that were represented at the Philadelphia Exposition of 1876. These latter were more or less significant of the progress in the variety of goods made between 1876 and 1893. At Philadelphia the silk exhibit of Massachusetts consisted wholly of machine twist, sewing, embroidery, saddlers' and button-hole silk; while at Chicago, in addition to these, were to be seen silks for linings, serges, surahs, satins, dress silk, braids, mittens, hosiery and underwear. In many of these new products this State has taken an advanced position compared with other States, with much promise of continuing improvement. The silk exhibit of Massachusetts at Chicago was entitled to great praise, especially for its machine twist and sewing silks.

Massachusetts had no jute or kindred exhibit at Chicago and only one linen exhibit, and that consisted of crash. The mill making this exhibit was also represented with the same kind of product at Philadelphia in 1876.

There were twenty-one different manufacturing establishments in Massachusetts making exhibits of cotton manufacture at the World's Fair, having a spinning capacity of 1,299,148 spindles, or about nineteen per cent. of the total cotton-spinning capacity of the State. The exhibits represented goods whose annual production amounted to not far from \$20,000,000. The character of Massachusetts' cotton goods exhibit was fully as rich as that made at Philadelphia in 1876, but it was not so extensive. In 1876 the mills of the State made exhibits representing the produce of 2,164,082 spindles, or about fifty-six

per cent. of the total spinning capacity of the State at that time. Forty-seven different establishments were thus represented at the Exposition of 1876, to less than half that number at the Exposition of 1893. There was less interest taken in the latter than in the former owing to various reasons, the most potent of which was the lack of any concert of action. It was urged upon manufacturers by the Massachusetts Commission for the World's Columbian Exposition that they appoint a special committee to advise and take charge of exhibits of this kind, but the suggestion was not favorably received, with the consequence that there was not as full a representation of the State's cotton manufacture as there should have been. Thus every exhibitor at the Chicago exposition acted individually, according to his own ideas of what was wanted. Many manufacturers were disinclined to make a display of their products with the limited space allowed them by the Exposition authorities. They were, however, as liberally treated as possible in this respect. Eleven of those exhibiting at the Chicago exposition exhibited at Philadelphia in 1876. In the latter year they represented the product of 741,536 spindles, while in 1893 they represented the product of 1,025,432 spindles, or an increased productive capacity of 283,896 spindles. Among the cotton-goods exhibitors at the World's Fair was a concern, for the first time appearing in an exhibition of this kind, with an exhibit of fabrics quilted by a knitting process. This exhibit was not with the general group of cotton manufactures, but was located in one of the galleries.

A finer line of cotton manufactures was observed at the Chicago than at the Philadelphia fair. The product of the combing machine was seen in a number of exhibits either in the form of yarns or fabrics. One mill alone showed the product of fifty-six combing machines. Nothing of this kind was observed at Philadelphia. The mills of Massachusetts have made great advances in this respect since 1876. The variety

of yarns at Chicago gave evidence of this. One establishment alone that was represented at the fair manufactures three hundred different varieties of yarn, in fineness and quality, to meet the demands that are made upon it. Among its products may be enumerated harness twine ; three, four and six ply thread ; fine yarns for plushes ; seine twine ; yarn for covering electrical wire, etc. Several of these are new to American industry.

The principal line of cotton manufactures from Massachusetts mills naturally consisted of brown and bleached sheetings and shirtings. About one-third of the represented products was of these goods, — that is to say, these goods represented the product of about 425,000 spindles. Some of the mills exhibiting at Chicago had not materially changed their styles of manufacture since 1876, yet it was an interesting feature in some instances of mills having turned their attention from one class of goods, as sheetings, to those of a higher order, requiring greater skill in their production. There were enough cases of this kind to excite favorable comment of the advancement that had been made in this particular. Muslins, satteens, lawns and nainsooks had taken the place of ordinary sheetings ; and chambrays, challies, llama cloth, velveteens and corduroys the place of painted and dyed calicoes. There were no exhibits at Chicago of printing cloths. Fall River mills were represented in such goods as gingham, cambric muslins and yarns, but no example of their chief and peculiar product was to be seen. At Philadelphia nineteen of these mills exhibited full lines of printing cloths.

If the cotton manufacturers of Massachusetts did not do themselves full justice at the World's Fair, for reasons best known to themselves, the same cannot be said of the woollen manufacturers, however apathetic some of them seemed to be to the credit that an exhibit of this kind reflects upon the State and nation as representative of an enterprising spirit. Twenty-three wool manufacturing establishments of Massachusetts

exhibited at Chicago, representing the productive capacity of about 750 sets of carding machinery. This included about 94 combing machines, equivalent to about 282 sets of cards. At the 1876 exposition the number of establishments represented was 17 and the number of sets about 500. Only five of the mills that exhibited in 1876 exhibited in 1893, and the general character of the goods displayed by them was about the same in both instances. In the meantime, however, marked progress had been made in the style, quality and finish of the goods produced. It was particularly noticed that worsted yarn had taken the place of the woollen yarn in the fabrics of 1893 as compared with those of 1876. The contrast was an exemplification of the advance that had been made in the introduction of the system of combing in our factories. The elegant fancy cassimeres, made from carded wool, of the Bell Air Manufacturing Company's manufacture, Pittsfield, that equalled the best product of foreign looms in 1876, were not rivalled in any of the exhibits in 1893. A fabric made from combed wool usurped their place. There were some superior cassimeres, however, made from carded wool, to be seen at Chicago, in various colorings and tasteful designs. But most of the goods of this kind were of medium grade, intended for the masses. The skill displayed in their manufacture was very apparent, — quite as much so as that seen in some of the higher order of woollen fabrics which had superior qualities of wool in their favor. Yet the great points of excellence were chiefly conspicuous in the fabrics made from worsted yarns. The course of fashion decreed this, and at no previous exposition was there such a varied and creditable display of fine American worsted fabrics. Massachusetts did not carry off the palm in these goods for men's wear, but she bore her part well, and exhibited fabrics that returned good profit to those that manufactured them. There was money and good dividends in them. At Philadelphia only two Massachusetts woollen mills showed worsted goods for men's wear, while at Chicago there were seven.

The exhibits of overcoatings, kerseys, beavers, cloakings and similar fabrics made by Massachusetts mills were, in many instances, of great excellence, and were adjudged so in the distribution of awards. Woollens with chinchilla finish, of different varieties in style and colors, were among the attractive features of the general display from the State. An exhibit of curled mohair and wool cloakings made by one mill was almost incomparable.

Six flannel mills, with eighty-five sets of machinery, were represented at Chicago. Most of these goods were of the ordinary type of flannels, for which there is not that demand as in former years. They represented a class of woollens that at one time were in great favor, but which have been superseded very largely by knitted fabrics. They have a demand, though it is rather on the decline than otherwise.

Massachusetts had no exhibit of knit goods at Chicago, except one, and that was confined to hosiery. Eider-downs and that class are excepted. In regard to the flannels, an exception should be made to the foregoing comments of the product of one Massachusetts mill, which easily stands first among the mills of the United States in the fineness and elegance of its manufacture of flannels, both where wool alone is used and where silk is used in the warp. Their superior is not to be found in this or in any foreign country. They had a record at the Philadelphia exposition for great perfection of fabrication, and the international reputation there gained was not lost at the Chicago exposition. The exhibits of eider-down flannels, so called, was something entirely new to an American public at an exposition of this kind. The one exhibit of this kind of a Massachusetts concern was deserving of high encomium as providing a class of goods for ladies' and children's wear, and for purposes where warmth and durability, combined with gossamer lightness, is desired.



The finest display of wool felts at the Exposition was made by a Massachusetts mill. These goods were intended for upholstery, hats, boots, piano purposes, etc. They were in great variety of colors. In the manufacture of these goods every improvement in machinery, dyeing and finishing was adopted. The upholstery and embroidery felts exhibited were made from carefully selected wool, free from cotton and shoddy, uniform in quality, colored with fast dyes in more than two hundred and fifty different shades, and given a lustrous cloth finish. These felts are used for lambrequins, table and piano covers, school, tennis and musical instrument bags, millinery, and for covering desks, card, billiard and library tables, counters, etc. They are made seventy-two inches wide and in pieces about twenty-three yards in length.

Massachusetts had one exhibit of shawls at Chicago, which was unsurpassed by anything of the kind to be seen even there. It consisted of velvet shawls of many varieties, beaver shawls and woollen long shawls. There were several exhibits from different mills of such fabrics as meltons, tricots, chevots and friezes, manufactured to meet the general demand for goods of this description.

The line of woollen dress goods exhibited by the mills of this State was without any decided competition in the American exhibit of woollen goods. Including the manufactures of Italian cloths, mohair serges, linings, etc., in with dress goods, and the exhibits were contributed by four of the largest mills in the State. They were every way superior in point of design, color and finish. These mills also exhibited similar lines of goods at Philadelphia, where they carried away the highest honors for excellence of manufacture. The variety of dress goods shown is but partially described in the names of Henrietta cloth, iridescent fancies, plaids, whip cords, albatross, etc.

There were no exhibits at Chicago from any of the carpet



mills of the State, and but one from all the States in the Union. This was owing to the inability on the part of the mills to secure a satisfactory amount of exhibition space from the exposition authorities. In this respect the textile exhibit of Massachusetts was inferior to that at Philadelphia, where a handsome display was made of Brussels, Wiltons, tapestry Brussels, and two and three ply ingrain, besides rugs and mats.

MASSACHUSETTS IN THE SEVERAL DEPARTMENTS OF  
THE WORLD'S COLUMBIAN EXPOSITION.

BY E. C. HOVEY.

It is, of course, manifest that no adequate account of the many individual exhibits contributed by the Commonwealth of Massachusetts to the great Department of Manufactures can be given in a single chapter of this official report. It is equally true, however, that such report would be far from complete did it not attempt to give a *résumé* at least of all the exhibits collected as exponents of her great manufacturing industries, the more especially as a separate chapter has been devoted to her textile interests. That these latter should be noticed at length, while the equally important manufactures of paper and of leather, of watches and of pianos, were ignored, would be an injustice not to be reconciled with the desire of the Board to give a just account of the contributions which the State made to each of the many departments of the Exposition.

The contributions of Massachusetts to the group having to do with paper and paper-making were, as might well have been expected, most important. The well-known and justly famed manufacturers of Berkshire and Hampden counties sent samples of their product which attested to their superiority and excellence of finish. A comparison of the number exhibiting with the number of those to whom the Board of Judges granted an award may serve to show how commendable these exhibits proved to be in the minds of this committee of expert examiners.

Closely allied with paper and paper-making are books and book-making. To this department many of the foremost publishers of the State sent their exhibits. Though a very inadequate space had been assigned to them, they cheerfully accepted

their several allotments, making use of same in a most artistic manner. In a dignified and powerful way they told the story of the contributions which Massachusetts has always made and is still making to the literature of the country. It was a pleasure indeed to see the interest with which visitors examined and lingered over these exhibits of mere books.

The contributions of Massachusetts to the display of furniture was by no means large. Indeed, with Chicago situated in the very midst of the great furniture manufacturing centre of the country, it was not to be expected that the East would be a very considerable factor in this special department. Of the seventy exhibits therein less than one-third went from points east of Detroit, of which number Massachusetts furnished her full proportion.

To the enterprise and hearty co-operation of the stone-cutters and quarry owners of Quincy the citizens of the Commonwealth are indebted for an exhibit of granite which was as interesting as it was beautiful. Consisting as it did of a score or more of monuments artistically arranged, it attracted very great attention, proving once again the great beauty of the well-known Quincy granite, its great hardness and its susceptibility of taking a very high degree of polish.

It is a matter of regret that Attleborough, the seat of jewelry manufacture within the State, did not send her contributions, that they might have been placed side by side with the products of the factories of Providence, the rival centre of this great industry. In this department, to which the latter city sent nearly ninety per cent. of all the exhibits, Attleborough had but a meagre representation. To Group 99, however, devoted as it was to watches, clocks, etc., Massachusetts sent an exhibit which, if quality be the measure of superiority, stood second to none. In their space upon the main aisle of the great manufacturing building the Waltham Watch Company received visitors by the thousands, attracted thither by the sight of one

day's product, two thousand finished watches, each ticking away the minutes and the hours. Added to these there were to be seen many machines of the greatest delicacy and ingenuity, automatically doing the most intricate work, while in a case by itself was a collection of watches showing the evolution of that which, though once considered a great luxury, is now deemed to be an absolute necessity.

In the section devoted to wire and wire goods Massachusetts was not, when considered numerically, very strong. To offset this statement, however, it is perhaps only necessary to add that the Washburn & Moen Manufacturing Company was there in force, their exhibit in the Manufacturers Building being only one of many made by this great corporation in the several buildings of the Exposition. It may perhaps be justly said that, when consideration is given to their many exhibits, the contributions from this manufacturing corporation in the city of Worcester stood second to none.

The same comments apply with equal force to the hardware section, in which were to be seen the exhibit of shovels, spades, etc., made by the Oliver Ames Sons Corporation of North Easton, the contributions of the Atlas Tack Corporation of Boston, as well as exhibits of light edge and boring tools from Millbury and from Fiskdale. Here again quantity was not the one thing desired. The quality of product, though, was surely worthy of the State, whose citizens had every reason to be proud of the contributions sent from the Commonwealth.

Most nobly did the great centres of boot and shoe manufacture in Massachusetts respond to the invitation to show their wares in the Exposition. More than one-half of all the exhibit in this department went from Lynn, Haverhill, Boston, Amesbury and Rockland. These were displayed in a building the erection of which was made possible only through the liberality and public spirit of the manufacturers in the West and East, who raised the funds among themselves with which to put up a

building to be devoted to exhibits of leather and of its manufactures. That the manufacture of boots and shoes has not entirely left Massachusetts these notable exhibits were evidence. In the exhibit of rubber foot-wear Massachusetts easily led, those of the American and Boston Companies being by far the most important in this section, while in the groups devoted to what may perhaps be termed "shoemaker supplies" the Commonwealth certainly was second to none.

Such, then, is a *résumé*, inadequate to be sure, of the contributions from Massachusetts to the great department of manufactures. To these, however, must be added further exhibits which, although they properly belonged to this same department, were nevertheless, under the classification of the Exposition, placed in other buildings.

Carriages and bicycles, steamboats and locomotives are as surely articles of manufacture as are woollens and cottons and shoes and paper. These were, however, placed in the Transportation Building. To this building the Commonwealth sent its full quota of exhibits. The great and important carriage-making centre of Amesbury was represented by a full collection of the many kinds of vehicles made in its factories, while from Boston and other places in the State exhibits of bicycles were received which stamped the Commonwealth as easily leading in this new but greatly developed branch of manufacturing. An interesting display of cars and locomotives was made by the Old Colony Railroad, which also, by means of models and pictures, showed the progress and development in the building and equipment of Sound steamers, as made by the Old Colony Steamboat Company. Numberless other exhibits were made by Massachusetts firms in railway appliances, refrigerator cars, car wheels, etc., showing that the inventors of Massachusetts are keeping themselves busy and are succeeding in developing their ideas into articles of use and benefit to the world at large. A very interesting exhibit was sent to the Transporta-

tion Building by the Essex Institute of Salem. By means of pictures they were able in a most successful and artistic manner to show the evolution of the sailing vessel, beginning with the earliest days, when that city was an important factor in the commerce of the country. In their rooms in Salem the Essex Institute has a most interesting collection, which has been made by her citizens, who, by reason of the great number of voyages to different parts of the globe made by vessels then owned by Salem merchants, were able to get together a large number of curious articles of all descriptions from the peoples of many countries. Among these were canoes and boats used by the natives in far-away climes. A picture of this museum was singularly appropriate in a department one section of which was devoted to methods of transportation in use now, as well as in days that are past, by all the known people of the world.

It was hoped by the Board that a unified exhibit of the fishing interests of the Commonwealth might have been made, to the end that such collection should have been placed in the Fisheries Building as a State exhibit. The efforts of the Board in this direction did not meet with success. Such failure, however, the Board are glad to report, did not prevent the sending to Chicago of a collection which worthily represented this very important industry. Occupying the most conspicuous position in the building devoted to these interests, the city of Gloucester was able, by the use of models, as well as by means of statistical charts, to emphasize her well-known position in deep-sea fishing. Her exhibit was not interesting only, but of great value, in showing the enormous increase in the business, which well-nigh supports this thriving Cape Ann city. Individual firms, both of Boston and Cape Ann, supplemented Gloucester's exhibit by sending full and interesting collections of articles used by and indispensable to those who spend their lives on the Banks of Newfoundland in hazardous and weary toil.



In the bureau of Liberal Arts, especially devoted to music and musical instruments, the State of Massachusetts, naturally enough, had an exhibit in every way worthy of this very important industry, an industry in which a large aggregation of capital is invested, an industry in which, too, Massachusetts was to a large extent the pioneer.

Occupying prominent positions in this section, the manufacturers of pianos and organs from the State, not only by a careful selection of the instruments sent forward but by the artistic treatment of the spaces severally allotted to them, justified the expectations of the public. They have reason indeed to feel satisfied with the conclusions arrived at by the very painstaking and critical board of judges to whom were referred for decision the merits of the many instruments on exhibition.

The term "pianos and organs" is used herein to cover all forms of musical instruments sent from the Commonwealth. A glance at the appendix will show to what a large proportion of exhibitors in this department awards were finally granted. It is only fair in this connection to call attention to the fact that several of those who exhibited did so with the understanding that their instruments were not to be examined and passed upon by the board of judges.

The State likewise sent a commendable display to the group in Liberal Arts having to do with pharmaceutical preparations, several of the largest and best known firms making exhibits in every way worthy of their standing and of distinct credit to the State.

By reason of the industry and enthusiasm of the women of Boston, and through the courtesy, public spirit and generosity of their several owners, the State has good reason to be proud of the collection of historic relics which filled the space in the rotunda of the Government Building specially allotted to the Commonwealth within which to make a display of such articles as had peculiar reference to her Revolutionary

history. It may be said without fear of contradiction that none of the original thirteen colonies sent a collection which awakened a higher degree of interest than did that which went from Massachusetts, as the result of the good work done by the women of Boston and vicinity, whose collection in the State Building has already been at length referred to.

In his special report on the Fine Arts Exhibit Mr. C. Howard Walker has called attention to the prominent part played by men of Massachusetts in that department of the Exposition relating to its artistic side. The administration of the Exposition in its entirety has been highly commended. While it is of course true that during the period of construction, as well perhaps as during the continuance of the Exposition, a certain clash of authority may have made criticism natural, it cannot be gainsaid that never before has such an enormous sum of money been spent, never before have so many men been under one authority, and never before has such a gigantic enterprise been carried forward to such a successful end with so little friction and with so little cause for complaint. It is pleasant to record the fact that a large number of those who were responsible for the great success of this the greatest of all international expositions, whether in the local directory or in positions of executive management, were men of Massachusetts. Including the Director-General, there were in positions of high responsibility and trust, as heads of departments or as the controlling spirit in many of the bureaus, men born within the Commonwealth.

To them and to their associates are due the thanks of the people of the United States for that intelligence and patient perseverance, in the face of obstacles the nature of which the stranger knew not of, as well as for that untiring and self-sacrificing zeal, resulting, out of seeming chaos, in that startling whole which, by those who saw it, will ever be recalled as the most beautiful sight their eyes have ever seen.

*CONCLUSION.*

The administration of the State Building during the six months that it was open to the public was a matter of deep concern to the Board, their one desire being that the building should be so administered as to emphasize a hearty welcome and true hospitality, and to this end it became necessary that, added to the custodian and janitorial service, which, of course, was needed in a building of the kind, there should be a matron and assistants, who, taking an interest in the building themselves, should be qualified to receive people heartily and cordially, and, at the same time, impart to the visitor some of its historic spirit.

There is perhaps no part of the labors of the Board which its members take more satisfaction in than in the selection of those who constantly and uncomplainingly assisted in the reception of visitors. Realizing that this Exposition was truly an international one, and feeling sure that among the visitors to the building would be people of many nationalities, the Board included among those who assisted them a lady from the Chicago University thoroughly acquainted with several languages. That this decision was a wise one could, perhaps, be evidenced in no better way than by

stating the fact that the services of this assistant were frequently asked for by representatives of foreign governments.

To Mr. and Mrs. W. K. Stockdale, custodian and matron, respectively, of the Massachusetts State Building, the Board desire to express their thanks for their constant and unselfish attention to the duties of their office, as well as for the care which they ever gave to the State Building. To the words of satisfaction and thanks which members of the Board have frequently heard expressed by visitors to the Exposition, to and of Mrs. Hinckley, Miss Wallace and Miss Scudder, the Board desire to add their expression of thanks for the unfailing and kindly co-operation which these ladies constantly gave them, and to the Misses Macdonald, who, from almost the day of the appointment of the Board until after the first of January, 1894, were constantly in the office of the Massachusetts Board of World's Fair Managers, the Board cannot express too deeply their thanks for the devotion which they gave to the interests of the office. Only the members of the Board, by whom the Misses Macdonald were constantly employed, can have any due appreciation of the services which they rendered to the Commonwealth.

The Board feel that the State was singularly fortunate in securing such a corps of assistants for the trying season while the Exposition was open, and they are glad to testify not only to their own appreciation

of services rendered but to the many words of praise which have come to them from those who experienced kindness and thoughtfulness from these assistants who so uncomplainingly and so pleasantly attended to the tedious and oftentimes perplexing duties in connection with the administration of the State Building.

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## APPENDICES

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## *PREFACE TO APPENDICES.*

With reference to the two appendices, the one containing a list of exhibitors from the Commonwealth, the other the names of those to whom awards were granted, the Board desire to say that they cannot guarantee their absolute accuracy, though they have endeavored to secure the most trustworthy information. Without such a preface they might justly be held blameworthy for issuing, in connection with an official report, lists which they cannot but believe will be found erroneous.

In making out such lists they have found, most unfortunately, that the official catalogue cannot be depended on. Supplementary to that publication they have put themselves in communication with the Bureau of Awards and with the chiefs of the various departments, and have endeavored to give to the citizens of the Commonwealth the latest information obtainable. Their report has been already too long delayed, and to them it seems wiser to publish now than to wait until every possible inaccuracy shall have been settled, a result which in their opinion cannot be satisfactorily reached until the final report of the World's Columbian Commission shall be made public.



## APPENDIX A.

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### *LIST OF CONTRIBUTORS TO THE COST AND FURNISHINGS OF THE MASSACHUSETTS STATE BUILDING.*

MURDOCK PARLOR GRATE COMPANY,	Boston,	. Andirons, fireirons, etc.
HOUSEHOLD ART TILE COMPANY, .	Boston,	. Tiles.
DEXTER BROS., . . . . .	Boston,	. Shingles.
JORDAN, MARSH & CO., . . . .	Boston,	. Carpets.
C. F. HOVEY & CO., . . . . .	Boston,	. Linen.
THE SMITH ANTHONY COMPANY, .	Boston,	. Plumbing.
LAWRENCE, WILDE & CO., . . .	Boston,	. Furniture.
CHICKERING & CO., . . . ' . .	Boston,	. Pianos.
R. HOLLINGS & CO., . . . . .	Boston,	. Electric fixtures.
JACOB W. MANNING, . . . . .	Reading,	. Plants, shrubs, etc.
C. H. KIP, . . . . .	Boston,	. Window screens.
FORD & BROOKS, . . . . .	Boston,	. Stained windows.
IRVING & CASSON, . . . . .	Boston,	. Wood mantels.

## APPENDIX B.

*LIST OF PORTRAITS LOANED TO THE MASSACHUSETTS  
BOARD OF WORLD'S FAIR MANAGERS, WITH  
NAMES OF OWNERS.*

PORTRAITS.	LOANED BY
JOHN A. ANDREW, . . . . .	JOHN F. ANDREW.
RALPH WALDO EMERSON, . . . . .	COMMONWEALTH.
MARIA MITCHELL, . . . . .	CAPE COD ASSOCIATION.
BISHOP BALLOU, . . . . .	TUFTS COLLEGE.
GOVERNOR GORE AND FAMILY, . . . . .	WOMEN'S COMMITTEE OF BOSTON.
JARED SPARKS (bust), . . . . .	PROF. L. S. PICKERING.
NATHANIEL BOWDITCH, . . . . .	WILLIAM I. BOWDITCH.
BENJAMIN FRANKLIN, . . . . .	WALTER GILMAN PAGE.
JOHN HANCOCK, . . . . .	WALTER GILMAN PAGE.
SAMUEL ADAMS, . . . . .	WALTER GILMAN PAGE.
GOVERNOR WINTHROP, . . . . .	WALTER GILMAN PAGE.
WILLIAM PYNCHON, . . . . .	REV. DR. PYNCHON.
CHARLOTTE CUSHMAN, . . . . .	CAROLINE L. CARR.
GEN. HENRY KNOX, . . . . .	CLARENCE W. BOWEN.
HON. BRADDOCK DIMMOCK, . . . . .	CAPE COD ASSOCIATION.
CATHERINE M. SMITH, . . . . .	REV. CHAS. A. HUMPHREYS.
JOHN ADAMS, . . . . .	ADAMS ACADEMY.
JOHN QUINCY ADAMS, . . . . .	JOHN QUINCY ADAMS.
CHARLES FRANCIS ADAMS, . . . . .	JOHN QUINCY ADAMS.
THEOPHILUS PARSONS, . . . . .	MISS M. S. PARSONS.
COL. CHARLES R. LOWELL, . . . . .	MRS. SAMUEL PUTNAM.
GEN. JOS. HOOKER, . . . . .	COMMONWEALTH.

PORTRAITS.	LOANED BY
GEN. E. V. SUMNER, . . . . .	COMMONWEALTH.
GEN. CHARLES DEVENS, . . . . .	FREDERICK P. VINTON.
RUFUS CHOATE, . . . . .	MRS. ELLERTON L. PRATT.
ROBERT C. WINTHROP, . . . . .	ROBERT C. WINTHROP.
DR. HENRY J. BIGELOW, . . . . .	W. STURGIS BIGELOW.
DR. JACOB BIGELOW, . . . . .	W. STURGIS BIGELOW.
GEN. WM. F. BARTLETT, . . . . .	MRS. BARTLETT.
PROF. BENJAMIN PIERCE, . . . . .	PROF. J. M. PIERCE.
GOV. WILLIAM E. RUSSELL, . . . . .	E. C. HOVEY.
JONATHAN EDWARDS, . . . . .	A. L. FROTHINGHAM, JR.
JAMES RUSSELL LOWELL, . . . . .	JAMES B. LOWELL.
WENDELL PHILLIPS, . . . . .	MRS. JOHN C. PHILLIPS.
WM. LLOYD GARRISON, . . . . .	FRANCIS J. GARRISON.
JOHN LOTHROP MOTLEY, . . . . .	EDWARD MOTLEY.
BISHOP HAVEN, . . . . .	REV. S. HUNT, D.D., 150 Fifth Avenue, N. Y.
GEORGE CABOT, . . . . .	HENRY CABOT LODGE.
DANIEL WEBSTER, . . . . .	FRANCIS H. MANNING.
HORACE MANN, . . . . .	COMMONWEALTH.
WM. E. CHANNING, . . . . .	E. C. HOVEY.
BISHOP BROOKS, . . . . .	ROBERT TREAT PAINE.
ROBERT TREAT PAINE (signer of the Declara- tion of Independence), . . . . .	ROBERT TREAT PAINE.
GEORGE TICKNOR, . . . . .	ANNA E. TICKNOR.
WILLIAM H. PRESCOTT, . . . . .	ANNA E. TICKNOR.
CHARLES SUMNER, . . . . .	CHARLES W. PARKER.
THEODORE PARKER, . . . . .	E. C. HOVEY.
HENRY W. LONGFELLOW, . . . . .	ANNIE LONGFELLOW THORP.
JAMES FREEMAN CLARKE, . . . . .	THOMAS C. CLARKE.
LYDIA MARIA CHILD, . . . . .	ANNE WHITNEY.
MARIA WESTON CHAPMAN, . . . . .	ANNE WHITNEY.
GEORGE BANCROFT, . . . . .	JOHN C. BANCROFT.
REV. F. H. HEDGE, . . . . .	CHARLOTTE A. HEDGE.
PROFESSOR AGASSIZ, . . . . .	ELIZABETH C. AGASSIZ.
LEMUEL SHAW, . . . . .	S. S. SHAW.



*ESSEX INSTITUTE COLLECTION.*

PORTRAITS.	LOANED BY
JOHN ENDICOTT, . . . . .	WM. ENDICOTT.
SIMEON BRADSTREET, . . . . .	CITY OF SALEM.
GEORGE PEABODY, . . . . .	S. ENDICOTT PEABODY.
JOSEPH PEABODY, . . . . .	S. ENDICOTT PEABODY.
JOHN BERTRAM, . . . . .	ESSEX INSTITUTE.
MANASSET CUTLER, . . . . .	MISS A. W. WOODBURY.
NATHAN DANE, . . . . .	MISS A. W. WOODBURY.
WILLIAM GRAY, JR., . . . . .	ESSEX INSTITUTE.
SIR RICHARD SALTONSTALL, . . . . .	F. H. LEE.
ELIAS HASKETT DERBY, . . . . .	ESSEX INSTITUTE.
NATHANIEL BOWDITCH, . . . . .	ESSEX INSTITUTE.
JOSEPH STORY, . . . . .	ESSEX INSTITUTE.
NATHANIEL HAWTHORNE, . . . . .	ESSEX INSTITUTE.
DR. WILLIAM PAINE, . . . . .	F. H. LEE.
JOSEPH B. FELT, . . . . .	ESSEX INSTITUTE.
WM. H. PRESCOTT, . . . . .	ESSEX INSTITUTE.
TIMOTHY PICKERING, . . . . .	F. H. LEE.
TIMOTHY DEXTER, . . . . .	ESSEX INSTITUTE.
HENRY WHEATLAND, . . . . .	JOHN ROBINSON.
CAPT. GEORGE CURWEN, . . . . .	JOHN ROBINSON.
REV. GEORGE CURWEN, . . . . .	GEORGE R. CURWEN.
ABIGAIL (CURWEN) HAWTHORNE, . . . . .	GEORGE R. CURWEN.
MAJOR STEPHEN SEWELL, . . . . .	GEORGE R. CURWEN.
MARGARET (MITCHELL) SEWELL, . . . . .	GEORGE R. CURWEN.
SAMUEL CURWEN, . . . . .	GEORGE R. CURWEN.
CHARLES W. UPHAM, . . . . .	ESSEX INSTITUTE.
ROBERT RANTOUL, JR., . . . . .	ESSEX INSTITUTE.
JOHN CARNES, . . . . .	ESSEX INSTITUTE.
GEO. WASHINGTON, . . . . .	F. H. LEE.
MRS. FITCH, . . . . .	ESSEX INSTITUTE.

*A COLLECTION OF PORTRAITS AND AUTOGRAPHS LOANED BY MRS  
MARIA S. PORTER OF BOSTON.*

NATHANIEL HAWTHORNE.  
LUCY LARCOM.  
JAMES RUSSELL LOWELL.  
WM. HENRY CHANNING.  
CELIA THAXTER.  
WM. LLOYD GARRISON.  
ELIZABETH B. PEABODY.  
WM. DEAN HOWELLS.  
THOMAS BAILEY ALDRICH.  
SAMUEL F. SMITH.  
JOHN BOYLE O'REILLY.  
OLIVER WENDELL HOLMES.  
EDWIN ARNOLD.  
JEAN INGELOW.  
L. M. ALCOTT.

LOUISE CHANDLER MOULTON.  
CHRISTOPHER P. CRANCH.  
T. C. CRAWFORD.  
JAMES FREEMAN CLARKE.  
CHRISTINE ROSSETTI.  
GABRIEL ROSSETTI.  
THOMAS W. PARSONS.  
COL. T. W. HIGGINSON.  
JOHN G. WHITTIER.  
BISHOP BROOKS.  
ROBERT BROWNING.  
H. B. STOWE.  
RICHARD H. DANA.  
ANNE WHITNEY.  
HELEN HUNT JACKSON.

*LIST OF SILHOUETTES LOANED BY CHARLES P. BOWDITCH.*

JONATHAN WALDO.  
TIMOTHY PICKERING.  
THOMAS CUSHING.  
NATHANIEL WEST.  
SAMUEL SEWALL.  
REV. JOHN PRINCE.  
MRS. PRINCE.  
JONATHAN TUCKER.  
MRS. TUCKER.  
MR. BOWDITCH.

REV. DR. LUCIUS BOLLES.  
REV. DR. T. BARNARD, JR.  
JONATHAN P. SAUNDERS.  
REV. DR. BENTLEY.  
REV. MR. FISHER.  
BENJAMIN PICKERING.  
JOSEPH PEABODY.  
JOHN G. KING.  
REV. DR. DANIEL HOPKINS.  
JOHN PUNCHARD.

## APPENDIX C.

LIST OF EXHIBITORS FROM MASSACHUSETTS TO WHOM  
AWARDS WERE GRANTED.

## DEPARTMENT OF MINES AND MINING.

## Group 42.

NAME.	ADDRESS.	DESCRIPTION.
State of Massachusetts, .	-	Fossils, fossil foot-prints and minerals.

## Group 44.

State of Massachusetts, .	-	Stone.
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## Group 46.

Phoenix Manuf'g Co., .	Taunton, .	Graphite crucibles.
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## Group 49.

Washburn & Moen, .	Worcester, .	Iron and steel bars, rods and wire.
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## Group 51.

Washburn & Moen, .	Worcester, .	Copper in ingots, bars and rolled alloys and products.
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## Group 58.

Mackey, H. S., . .	Boston, . .	Electric drill, electric stone-carrying machines.
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## Group 64.

Bradley Fertilizer Co., .	Boston, . .	Pulverizing mill.
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## Group 68.

NAME.	ADDRESS.	DESCRIPTION.
City of Lynn, Mass., .	-	First iron casting made in America.

## DEPARTMENT OF MANUFACTURES.

## Group 87.

Jos. Burnett & Co., .	Boston, .	Flavoring extracts, perfumery, eologne water, toilet water and color pastes, sachet powder and lavender salts.
India Alkali Works, .	Boston, .	Alkalies.
Washburn & Moen, .	Worcester, .	Chemists' and druggists' wares and supplies.

## Group 88.

Boston Blacking Co., .	Boston, .	Blackings, dressings, stains and leather-patching cement.
Dexter Bros., . . . .	Boston, .	Shingle stains.
Gondola Tanning Co., .	Boston, .	Oakwood and chestnut tanning, tanning extract.
Mitchell Stain Manufacturing Co.,	Lynn, .	Bottom-finishing stains for boots and shoes.
John L. Whiting & Co.,	Boston, .	Brushes, material used in the manufacture of brushes.
Wiggins & Stevens, .	Malden, .	Sandpaper.
Henry Woods Sons Co.,	Boston, .	Paints.
Washburn & Moen, .	Worcester, .	Painters' and glaziers' supplies.
Henry Woods Sons Co.,	Boston, .	Colors.
Whitmore Bros. & Co.,	Boston, .	Dressings, blackings, inks, polishes.

## Group 89.

L. L. Brown Paper Co.,	Adams, .	Record paper for blank books and county records.
Z. & W. Crane, . . .	Dalton, .	Writing papers, general exhibit, pasted boards.
Crane & Co., . . . .	Dalton, .	Bank-note paper, bond paper, parchment paper.
Crane Bros., . . . .	Westfield, .	Linen paper, writing paper, ledger paper.
Franklin Typewriter Co.,	Boston, .	Franklin typewriters on desks.
Hurlburt Paper Mfg. Co.,	South Lee, .	Writing paper in packages and boxes.
Mills, Knight & Co., .	Boston, .	Patent leather-covered renewable memorandum books, fancy leather work, card and coin cases, wallets.
A. Lyman Williston, .	Northampton, .	Payson's indelible ink for marking linen.
Whiting Paper Co., .	Holyoke, .	Bond paper, envelopes and fine folded writing paper, bristol board, ledger paper, flat paper, superfine flat paper for lithographing.
Byron Weston, . . .	Dalton, .	Ledger and record paper.

## REPORT OF BOARD OF

## Group 90.

NAME.	ADDRESS.	DESCRIPTION.
Atlas Tack Company, .	Boston, . .	Pilgrim spring bed.
Derby & Kilmer Desk Co.	Boston, . .	Derby roll-top desk, office furniture.
Decorative Art Society, .	Boston, . .	Embroidery.
Metropolitan Air Goods Co.	Boston, . .	Patent sofa and lounge beds.
Mrs. A. J. Peters, . .	Jamaica Plain,	Embroidered picture.
Lowell School of Design,	Lowell, . .	Design for wall paper and lace, industrial exhibit of bureau of applied arts.

## Group 91.

S. C. Blanchard, . .	Boston, . .	Plates.
Lucy Comins, . .	Jamaica Plain,	Bonbonniere.
Fiske, Homes & Co., .	Boston, . .	Specialties in brick and terra cotta.
Grace H. Peck, . .	Boston, . .	Decorated china.
M. J. Makee, . .	Newton Centre,	Decorated plate.
The Low Art Tile Co., .	Chelsea, . .	Tiles.
Ella A. Richardson, .	Boston, . .	Vases and tiling.

## Group 92.

Quincy Granite Manufacturers' Association.	Quincy, . .	Monuments, heading.
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## Group 95.

Continental Stained Glass Works.	Boston, . .	Stained glass.
Miss Flora McDonald, .	Boston, . .	Stained glass window.
Phipps, Sloenn & Co., .	Boston, . .	Stained glass window.
Sarah E. Whitman,	Boston, . .	Stained glass window.

## Group 96.

Mrs. John Lowell, . .	Boston, . .	Carved oak chest.
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## Group 97.

Mrs. H. L. Goodwin, . .	Boston, . .	Spoons, cups and foil.
Pairpont Mfg. Co., . .	New Bedford, .	Silver-plated ware.

## Group 98.

W. & S. Blackintown, .	Attleborough, .	Gold-plated, silver and fancy charms.
R. F. Simmons & Co., .	Attleborough, .	Gold and rolled plate chains.

## Group 99.

NAME.	ADDRESS.	DESCRIPTION.
American Waltham Watch Co.	Waltham, .	Watch movements, watch machinery, decorated watch dials, main-springs, non-magnetic watch movements, collective exhibit of watch movements and machinery, hair springs.
Washburn & Moen, .	Worcester, .	Watch movements and parts of watches, watchmakers' tools and machinery in parts.

## Group 100.

McCallum, Constable Hosiery Co.	Holyoke, .	Silk hosiery and tights, underwear and fancy caps.
Nonotuck Silk Co., .	Florence, .	Corticelli, spool silk and knitting crochet and wash silk, machine twist, silk underwear, hosiery.
The Wm. Skinner Mfg. Co.	Holyoke.	Coat and cloak trimmings, tailors' serges, tailors' braids.

## Group 102.

Appleton Company, .	Boston, .	Cotton flannels, bed ticks.
Barnaby Mfg. Co., .	Fall River, .	Ginghams.
Boott Cotton Mills, .	Lowell, .	Manufacturing cotton goods, brown and finished.
Clifton Mfg. Co., .	Boston, .	Brown cottons.
Dwight Mills, .	Chicopee, .	Brown cottons, bleached cottons.
Darol Mills, .	Fall River, .	Bleached muslins.
Finlayson, Bonsfield & Co.	Grafton, .	Threads for shoes and leather.
Fisher Mfg. Co., .	Fisherville, .	Cotton serims.
Globe Yarn Mills, .	Fall River, .	Yarns.
Glasgow Co., .	South Hadley Falls.	Ginghams.
Hadley Co., .	Holyoke, .	Cotton yarns, cotton threads.
Knitted Mattress Co., .	Canton Jct., .	Knitted cotton fabrics for mattresses, stair pads and upholstery.
Lancaster Mills, .	Clinton, .	Ginghams.
Lyman Mills, .	Holyoke, .	Cotton goods, bleached goods.
J. R. Leeson & Co., .	Boston, .	Shoe threads.
Merrimack Mfg. Co., .	Lowell, .	Printed cotton goods.
Methuen Co., .	Methuen, .	Fancy cotton fabrics.
Nannkeag Steam Cotton Mills.	Salem, .	Pequot bleached and brown muslin, Pequot Nannkeag twills.
Pacific Mills, .	Lawrence, .	Printed dress fabrics, dyed dress fabrics, cotton dress fabrics, worsted dress fabrics, woollen dress fabrics.
Pemberton Co., .	Lawrence, .	Fancy cotton fabrics.
Sanford Spinning Co., .	Fall River, .	Yarns for knit goods.
Stevens Linen Works, .	Webster, .	Linen crash.
Wamsutta Mills, .	New Bedford, .	Cotton goods, shirtings, sheetings.
Jos. W. Woods & Sons, .	Boston, .	Plain and printed cotton flannels, buntings, hollands and shirtings.
Whittenton Mfg. Co., .	Taunton, .	Colored cotton fabrics.



## Group 103.

NAME.	ADDRESS.	DESCRIPTION.
Arlington Mills, . . .	Lawrence, . . .	Worsted yarns, dress goods, coat linings, fine cotton yarns and men's wear serges.
Assabet Mfg. Co., . . .	Maynard, . . .	Cassimeres, tricots, ladies' cloth, overcoatings, fancy flannels.
Ballardvale Mills, . . .	Ballardvale, . . .	White flannels.
Belvidere Woolen Co., . . .	Lowell, . . .	Wool dress goods, wool flannels.
Berkeley Woolen Co., . . .	Wales, . . .	Kerseys, meltons.
Blackstone Woolen Co., . . .	Blackstone, . . .	Cassimeres.
The Blackinton Woolen Co., . . .	North Adams, . . .	Fancy cassimeres, fancy kerseys, meltons, tricots, worsted suitings, trouserings, cheviots, woollen cassimeres.
City Mills, . . . . .	City Mills, . . .	Felt goods.
Calumet Woolen Co., . . .	Uxbridge, . . .	Woollen fancy cassimeres.
Connor Bros., . . . . .	Holyoke, . . .	Beavers.
E. G. Carlton & Sons, . . .	Rochdale, . . .	Flannels.
Clinton Worsted Co., . . .	Clinton, . . .	Fancy worsted and trouserings.
Farr Alpaca Co., . . . . .	Holyoke, . . .	Italian cloths, serges.
Germania Mills, . . . . .	Holyoke, . . .	Beavers, kerseys, overcoatings, cloakings.
Merrimack Woolen Mills, . . .	Draent, . . .	Cloakings, kerseys, shawls, woollen goods.
Massachusetts Mohair Plush Co., . . .	Lowell, . . .	Mohair, plush, grained plush, Spanish velvet.
North Adams Mfg. Co., . . .	North Adams, . . .	Fancy cassimeres.
Pacific Mills, . . . . .	Lawrence, . . .	Worsted goods, woollen goods.
The Saxon Worsted Co., . . .	Franklin, . . .	Fancy worsteds.
C. A. Stevens & Co., . . . . .	Ware, . . .	Flannels, fancy flannel.
Stirling Mills, . . . . .	Lowell, . . .	Wool flannels, cheviots.
Talbot Mills, . . . . .	No. Billerica, . . .	Woollen flannels, dress goods.
Washington Mills, . . . . .	Lawrence, . . .	Woollen overcoatings and cloakings, worsted snitings, worsted yarns.
Wanken hose Co., . . . . .	Lowell, . . .	Hosiery.

## Group 104.

W. C. Ash, . . . . .	Lynn, . . .	Shoes and slippers.
E. & A. H. Bacheller Co., . . .	Boston, . . .	Boots and shoes.
Herold E. Blake, . . . . .	Haverhill, . . .	Shoe tips.
John R. Benton, . . . . .	Lynn, . . .	Heels and lifts.
Geo. M. Coburn & Co., . . . . .	Boston, . . .	Shoes and slippers.
Geo. C. Davis, . . . . .	Lynn, . . .	Boots and shoes.
Olivia P. Flint, . . . . .	Boston, . . .	Corset waist.
Geo. Fuller, . . . . .	Lynn, . . .	Ladies' boots and shoes.
Chas. K. Fox, . . . . .	Haverhill, . . .	Shoes and slippers.
France & Spinney, . . . . .	Lynn, . . .	Boots and shoes.
Hazen B. Goodrich, . . . . .	Haverhill, . . .	Boots, shoes and slippers.
J. J. Groves' Sons, . . . . .	Lynn, . . .	Shoes.
L. P. Hollander & Co., . . . . .	Boston, . . .	Boys' clothing and costumes, ladies' clothing, garments and millinery, children's clothing and garments.
Hodgkins & Hodgkins, . . . . .	Boston, . . .	Hunting snit.
Herbert & Rapp Co., . . . . .	Boston, . . .	Shoe goring.
F. E. Hutchinson, . . . . .	Haverhill, . . .	Shoes and slippers.
G. W. Herriek & Co., . . . . .	Lynn, . . .	Boots and shoes.
Chas. E. Harwood & Co., . . . . .	Lynn, . . .	Soles, tops and counters.
Messenger Bros. & Sons, . . . . .	Boston, . . .	Driving coat, double-breasted box coat.

Group 104—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
T. C. Plant, . . .	Lynn, . . .	Ladies' boots and shoes.
Frank D. Somers, . . .	Boston, . . .	Frock coat, waistcoat, trousers.
J. S. Turner, . . .	Rockland, . . .	Shoes.
J. L. Thompson Mfg. Co.	Waltham, . . .	Shoe buckles for arctic overshoes and heavy grade shoes, belt fasteners for lacing belts on pulleys.
Shillaber & Co., . . .	Lynn, . . .	Boots and shoes.
Worcester Corset Co., . . .	Worcester, . . .	Corsets.
Woodman & Howes, . . .	Haverhill, . . .	Shoes and slippers.
Williams, Clark & Co., . . .	Lynn, . . .	Boots and shoes.
Morse Bros. & Co., . . .	Haverhill, . . .	Shoes and slippers.
New Home Sewing Machine Co.	Orange, . . .	Sewing machines, productions.
Thos. G. Plant, . . .	Lynn, . . .	Shoes.
Rice & Hutchins, . . .	Boston, . . .	Boots and shoes.
Rumsey Bros., . . .	Lynn, . . .	Boots and shoes.
J. F. Swain & Co., . . .	Lynn, . . .	Boots and shoes.
D. A. Sutherland, . . .	Lynn, . . .	Boots, ties and slippers.

## Group 106.

Ball and Socket Fastener Co.	Boston, . . .	Fasteners for gloves.
A. L. Fisk, . . .	Hingham, . . .	Lace veil.
M. P. Pace, . . .	Danvers, . . .	Lace veil.

## Group 109.

American Rubber Co., .	Boston, . . .	Mackintoshes, rubber boots, rubber boots and shoes, rubber clothing, oil clothing.
C. J. Bailey & Co., .	Boston, . . .	Rubber brushes, rubber shoes.
Boston Belting Co., .	Boston, . . .	Rubber belting, rubber packing, rubber hose, rubber blankets and aprons, rubber-covered rolls, rubber car, wagon and cylinder springs, rubber heat bags, rubber tubing, rubber mallets, rubber matting, mats and treads, rubber soling, gaskets, rings and deckle straps.
Boston Rubber Shoe Co.,	Boston, . . .	Rubber boots and shoes.
Stoughton Rubber Co.,	Boston, . . .	Men's rubber mackintoshes, boys' mackintoshes, ladies' and men's mackintoshes.
A. J. Towers, . . .	Boston, . . .	Oiled or waterproof clothing.
Washburn & Moen, . .	Worcester, . . .	Insulating compounds.

## Group 110.

Morton E. Converse & Co.	Winchendon, . .	Wooden toys, wooden novelties.
Miss E. S. Colby, . .	Boston, . . .	Game.
Parker Bros., . . .	Salem, . . .	Children's toys, children's games, authors, bagatelle, office boy, checkers, chess.

## REPORT OF BOARD OF

## Group 111.

NAME.	ADDRESS.	DESCRIPTION.
Kistler, Lech & Co., .	Boston, . .	Sole leather.
Lyman Smith's Sons Co.,	Norwood, . .	Sheep and lamb skins, sheep skin, bindings and linings.
Shaw Leather Co., . .	Boston, . .	Upper leather, shoes.
R. E. Williard, . . .	Lynn, . . .	Soles and leather.

## Group 112.

Hersey Mfg. Co., . .	Boston, . . .	Water meters.
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## Group 113.

Smith & Wesson, . .	Springfield, .	Revolvers.
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## Group 115.

Edward Atkinson, . .	Boston, . . .	The Aladdin oven.
Magee Furnace Co., .	Boston, . . .	Restaurant ranges, warm-air heating furnace, ranges, parlor stoves, hot-air and hot-water combination furnace.
Middleby Oven Co., .	Boston, . . .	Portable brick bake oven, combined baker and cake frier.
Ridgeway Furnace Co.,	Boston, . . .	Warm-air furnace.
Smith & Anthony Stove Co.	Boston, . . .	Steam and hot-water heaters, furnaces.
Wood & Sherwood Co.,	Lowell, . . .	Wire household goods, strainers, broilers, egg whip, soap brackets.

## Group 116.

National Key Opening Can Co.	Chelsea, . . .	Key-opening can.
A. D. Puffer & Sons, .	Boston, . . .	Soda water apparatus and all appliances.
Smith & Anthony Stove Co.	Boston, . . .	Kettles.
Jas. W. Tufts, . . .	Boston, . . .	Soda water apparatus and appurtenances.
The Low Art Tile Co., .	Chelsea, . . .	Soda fountain (art tile).

## Group 117.

Clinton Wire Cloth Co.,	Clinton, . . .	Wire cloth, fancy and galvanized wire, wire nettings, fencing wire cloth.
Translucent Fabric Co.,	Clinton, . . .	Translucent fabrics, transoms.

Group 117—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Washburn & Moen Mfg. Co.	Worcester,	Round wire springs, flat steel springs, round, angular and convey card wires, special improved plough steel wire for suspension bridge cables, patent crucible and plough steel rope wire, telegraph and telephone wire.

## Group 118.

Putnam Nail Co., .	Boston, .	Horseshoe nails.
John Hogan, .	Fitchburg, .	Horseshoes.

## Group 119.

Oliver Ames & Sons Co.,	North Easton, .	Shovels, spades, scoops, drainage tools.
Atlas Tack Co., .	North Easton, .	Tacks and brads.
American Improved Wrench Co.	North Easton, .	Double screw-jaw pipe wrench, double screw wrench, saving time and labor.
Barney & Berry, .	Springfield, .	Ice and roller skates.
Blount Mfg. Co., .	Boston, .	Door checks, springs and stops, sash locks.
Chas. Buck, .	Millbury, .	Edge tools.
Buck Bros., .	Millbury, .	Light edge tools, chisels.
Coburn Trolley Track Mfg. Co.	Holyoke, .	Parlor, barn and fire-door hangings.
Geo. E. Davis, .	Barrington Centre.	Graters.
Norton Door Check and Spring Co.	Boston, .	Automatic door checks and springs.
Snell Mfg. Co., .	Fiskdale, .	Boring tools.
Simons Mfg. Co., .	Fitchburg, .	Crescent-ground cross-cut saw, saw-set.
J. R. Torrey Razor Co.,	Worcester,	Razors.
J. S. Thompson Mfg. Co.	Waltham, .	Rivets for shoe, harness, trunks, etc.
Washburn & Moen, .	Worcester,	Builders' hardware. Artistic display and completeness of exhibit.

## Group 120.

Smith & Anthony Stove Co.	Boston, .	Water closets, sinks, sanitary traps.
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## Group 121.

American Improved Wrench Co.	Boston, .	Heading machine for scarf and stick pins.
Mrs. Harriet Browne, .	Boston, .	Dress-cutting system.
Meyer Putz Pomade Co.,	Boston, .	Liquid Putz pomade (brass polish), silver polish (Putz paste).
Standard Rivet Co., .	Boston, .	Rivets for leather.

Group 121—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Mrs. B. A. Stearns, . . .	Woburn, . . .	Dress-cutting system.
Otis C. White, . . .	Worcester, . . .	Adjustable extension movement in ball-and-socket joints, electric lamp supporters, surgical instrument holders, swivelling and clamping cane joints, adjustable and extension ball-and-socket joints.
Whitmore Bros., . . .	Boston, . . .	Stool and foot rest for shoe store salesmen.

## DEPARTMENT OF MACHINERY.

## Group 69.

Ashton Valve Co., . . .	Boston, . . .	Pop safety valves.
Hancock Inspirator Co., . . .	Boston, . . .	Inspirators for feeding steam-boilers.
Hersey Mfg. Co., . . .	South Boston, . . .	Rotary pumps.
Mills, John H., . . .	Boston, . . .	Mills sectional cast-iron boiler.
Puffer, A. D., & Sons, . . .	Boston, . . .	Bottling machinery, soda water apparatus.
Tripp Metallie Packing Co., . . .	Boston, . . .	Metallic packing for piston rods and valve stem.
Tufts, James W., . . .	Boston, . . .	Carbonating machinery.
Wainwright Mfg. Co., . . .	Boston, . . .	Surface condenser and feed water heater.
Washburn & Moen, . . .	Worcester, . . .	Apparatus for the transmission of power.
Walworth Mfg. Co., . . .	Boston, . . .	Brass and iron valves, cocks and fittings for steam, water and gas.
White, Otis C., . . .	Worcester, . . .	Adjustable expansion movement in ball-and-socket joints as applied to machinery.

## Group 70.

Coburn Trolley Track Mfg. Co., . . .	Holyoke, . . .	Sliding or travelling ladder.
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## Group 71.

American Tool Co., . . .	Boston, . . .	Brass finishing, lathe and oil separator.
Brainard Milling Machine Co., . . .	Hyde Park, . . .	No. 12 and 14 tool-room, milling machine; No. 1, 3, 4½ standard, universal milling machine, upright plain milling machine, horizontal plain milling machine, long feed milling machine, cam cutting machine, small milling cutter grinder, gear cutting machine.
Eaton, Geo. H., & Co., . . .	Boston, . . .	Power presses.
Hurlburt, Rogers Machine Co., . . .	South Sudbury, . . .	Cutting off and centring machine.
Morse Twist Drill and Machine Co., . . .	New Bedford, . . .	Twist drills, taps and dies, milling cutters, reamers and chucks.

Group 71—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Prentice Bros., . . .	Worcester, . . .	Screw cutting engine lathes, upright drilling machines.
Reed, F. E., & Co., . .	Worcester, . . .	Standard lathes.
Stark, John, . . . .	Waltham, . . .	Lathes.
Walworth Mfg. Co., . .	Boston, . . . .	Machine for tapping street main under pressure, tools for cutting and threading pipe, taps, dies and wrenches.

## Group 72.

Barrows, A., . . . .	Brockton, . . .	Last and shoe rack.
Bertrand Lock Stitch Sewing Machine Co.	Boston, . . . .	Lock stitch welt sewing machine.
Boston Lasting Machine Co.	Boston, . . . .	Boot and shoe lasting machines.
Brett, Henry W., . . .	Boston, . . . .	Shoe upper cementing machine.
Bresnahan, Maurice V., & Co.	Lynn, . . . . .	Automatic boot and shoe sole leveller.
Bussell Trimmer Co., .	Boston, . . . .	Edge trimmer.
Chase Lasting Machine Co.	Boston, . . . .	Shoe lasting machine.
Cheney Bigelow Wire Works.	Springfield, . .	Paper makers' wires.
Crompton Loom Works.	Worcester, . . .	Looms.
Consolidated Hand Method Lasting Machine Co.	Boston, . . . .	Shoe lasting machine.
Fifield, C. S., & Co., .	Boston, . . . .	Shoe machinery.
Flagg Mfg. Co., . . . .	Boston, . . . .	Inseam trimming machine.
Foster Machine Co., . .	Westfield, . . .	Carpet making machinery.
Globe Buffer Co., . . .	Boston, . . . .	Shoe machinery.
Goodyear Shoe Machinery Co.	Boston, . . . .	Shoe making machinery.
Harlow, Chas. F., & Co.,	Boston, . . . .	Union steam furnisher.
Hartford Bros., . . . .	Boston, . . . .	Sole rounding and pattern drafting machine.
Hemingway Bros., . . .	Lynn, . . . . .	Shoe machinery.
Hupper E. A., . . . .	Lynn, . . . . .	Shoe racks.
Jamieson, S. W., Boot and Shoe Crimping Machine.	Boston, . . . .	Boot and shoe crimping machine.
Knowles Loom Works, .	Worcester, . . .	Looms.
Leeson, J. R., & Co., .	Boston, . . . .	Universal winding machine for thread, yarn and wire.
Amogen Machine Co., .	Boston, . . . .	Leather skiving machine.
Littleton, L. M., . . .	Brockton, . . .	Heel seat heading machine.
Lowell Machine Shop, .	Lowell, . . . .	Exhibit of cotton manufacturing machinery.
Lufkin, John W., . . . .	Boston, . . . .	Two-vamp folding machine.
Marshall Engine Co., .	Turner's Falls, .	Refining engine for paper making.
Marshall, H. T., . . . .	Brockton, . . .	Straight folding machine.
McKay & Biglow, H. M. Co.	Boston, . . . .	Heel compressing and heeling machinery.
Miller, O. A., . . . .	Brockton, . . .	Boot and shoe trees and treecing machines.
Morley Button Sewing Machine Co.	Boston, . . . .	Shoe button sewing machine.
Nantukeag Buffing Machine Association.	Beverly, . . . .	Buffing machine.



Group 72—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Norris, T. A., Machine Co.	Brockton, .	Heel breast finishing machine.
New Home Sewing Machine Co.	Orange, .	Tailor sewing machine.
Paragon Needle Co., .	Boston, .	Paragon vamp marker.
Reese Button Hole Machine Co.	Boston, .	Button-hole machinery.
Holt, J. S., & Co., .	Boston, .	Boot and shoe monogram stamping and boot and shoe bottom polishing roll.
Samnders, S. L., .	Lynn, .	Shoe racks.
Sawyer Leather Machinery Co.	Boston, .	Leather-measuring machine.
Stanley Mfg. Co., .	Boston, .	Boot and shoe machine.
Steam Heated Horn Co.,	Boston, .	Steam-heated horn for soling machines, attachments for sole sewing machines.
Standard Rivet Co., .	Boston, .	Standard rivet machines.
Stoddard Crimping Machine Co.	Boston, .	Shoe-crimping machine.
Swain & Fuller Mfg. Co.,	Boston, .	Boot and shoe machinery.
Thompson, Judson L., Mfg. Co.	Waltham, .	Machines for driving rivets.
Trip Giant Leveler Co.,	Lynn, .	Giant leveling machine.
Tubular Rivet Co., .	Boston, .	Riveting and rivet-setting machines.
Union Heel Trimmer Co.	Boston, .	Busell heel trimmer.
Union Leather Measuring Machine Co.	Peabody, .	Leather-measuring machine.
Union Edge Setter Co.,	Boston, .	Edge-setting machines.
Vaughn Machinery Co.,	Salem, .	Hide and leather working machinery.
Wire Grip and Fastening Machinery Co.	Boston, .	Clinching and slugging machinery.
Worcester, A., & Sons, .	Boston, .	Brushes for the manufacture of boots and shoes.

## Group 73.

Simonds Mfg. Co., .	Fitchburg, .	Process of tempering saw blades, form of inserted saw teeth in circular saws, various wood saws and milling saws, cutting knives.
Woods, S. A., Machine Co.	Boston, .	Planing and matching machines, flooring machines, moulding machines, band saw, self-feed rip saw, resaw for siding shop surface planer, cabinet surface planer, double surfacer and timber sizer, inside moulding machine.

## Group 74.

Child Acme Cutter and Press Co.	Boston, .	Self-clamping paper-cutting machine.
Elliott Machine Co., .	Georgetown, .	Thread stitching and tying machine for books and pamphlets.
Golding & Co., .	Boston, .	Platen printing presses, printing material.
McIndoe Bros., .	Boston, .	Cylinder printing press for printing from half-tone and other engravings.

## Group 77.

NAME.	ADDRESS.	DESCRIPTION.
Crosby Steam Gauge and Valve Co.	Boston, . .	Stationary, marine and locomotive pop safety valves, feed water regulator and revolution counter, steam engine indicator, single spring gauge, double spring gauge and water line syphon valve, pressure gauge tester.
Faneuil Watch Tool Co.,	Boston, . .	Bench lathes and attachments, watchmakers' lathes and attachments, staking tools and the rivet patent friction clutch, watchmakers' lathe and attachments.
Northampton Emery Wheel Co.	Leeds, . .	Emery wheels.
Norton Emery Wheel Co.	Worcester, .	Emery wheels, tool-room grinding machine, twist drill grinding machine.

## Group 79.

Hersey Mfg. Co., . .	South Boston, .	Standard sugar dryer and granulator, cube sugar press.
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## DEPARTMENT OF AGRICULTURE.

## Group 3.

Charles G. Stebbins, .	South Deerfield,	Maple syrup.
Frank O. Williams, .	Sunderland, .	Maple syrup.
Walter M. Lowney & Co.	Boston, . .	Chocolate bonbons.

## Group 6.

E. T. Cowdrey, . . .	Boston, . .	Canned meats and canned soups.
North Packing and Provision Co.	Boston, . .	Meats in pickle, dry salt, sausages and bacon meats.
J. W. H. Huckins & Co.,	Boston, . .	Canned meats and soups.

## Group 7.

Simpson, McIntire & Co.,	Boston, . .	Butter in hermetically sealed packages for hot climates.
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## Group 8.

Massachusetts State Agricultural Exhibit.	-	Leaf tobacco.
Walter Baker & Co., .	Boston, . .	Chocolate and cocoa.
Nester Gianachs, . .	Boston, . .	Egyptian cigarettes.

## REPORT OF BOARD OF

## Group 9.

NAME.	ADDRESS.	DESCRIPTION.
Chase Cotton Gin Co., .	Milford, . . .	Cotton gin rotary stripper roller.
Eagle Cotton Gin Co., .	Bridgewater, .	Cotton machinery.

## Group 11.

Cushing Process Co., .	Boston, . . .	Patent process for purifying liquors or spirits.
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## Group 14.

Washburn & Moen, . .	Worcester, . .	Barbed fence wire and bale ties.
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## Group 17.

North Packing and Provision Co.	Boston, . . .	Fertilizer.
Crystal Gelatine Co., .	Boston, . . .	Gelatines and coffee settler.

## Group 18.

North Packing and Provision Co.	Boston, . . .	Lard and lard oil.
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## Live Stock.

Francis Shaw, . . .	Wayland, . . .	Guernsey cattle, bull, three years or over; second premium.
C. I. Hurt, . . .	Lowell, . . .	Jersey cattle, cow, four years or over; third premium.

## DEPARTMENT OF TRANSPORTATION.

## Group 80.

Old Colony Railroad Co.,	Boston, . . .	Passenger locomotive and historical exhibit.
Norton, A. O., . . .	Boston, . . .	Lifting jacks.
Burnham & Duggan	Boston, . . .	Switch.
R.R. Appliance Co.		
Boston & Lockport Block Co.	Boston, . . .	Wooden and steel blocks for railroad use.
Eastman Heater Co., .	Boston, . . .	Heater and ventilator car, refrigerator car.
Jewett Supply Co., .	Boston, . . .	Anti-friction device for passenger car.
Coburn Trolley Track Mfg. Co.	Holyoke, . . .	Overhead carrying track.
Ashton Valve Co., .	Boston, . . .	Pop safety valve.
Bird & Son, F. W., .	East Walpole, .	Waterproof fabrics.

## Group 81.

NAME.	ADDRESS.	DESCRIPTION.
Lambeth Cotton Rope Co.	New Bedford, .	Lambeth cotton rope.
Benis Car Box Co., .	Springfield, .	Electrical motor truck.
Robinson Electric Truck and Supply Co.	Boston, . .	Electric radial truck.
Washburn & Moen, .	Worcester, .	Cables for street railways.

## Group 83.

Hickory Wheel Co., .	Newton, .	Sulky, hickory bicycles.
Amesbury Carriage Co.,	Amesbury, .	Exercising break.
United States Whip Co.,	Westfield, .	Whips and whip machinery, oak and hickory sticks, woven horse lining, vulcanized rubber and eel skin.
Dalzell Axle Co., . .	South Egremont.	Fine carriage axles.
Currier, Cameron & Co.,	Amesbury, .	Spider phaeton.
Simonds Rolling Machine Co.	Fitchburg, .	Steel balls and steel rolled specialties.
Washburn & Moen, .	Worcester, .	Bicycle spokes.
Folger & Drummond, .	Amesbury, .	Saloon trap.
Briggs Carriage Co., .	Amesbury, .	Trap.
Clarkson & Co., J. T., .	Amesbury, .	Crown Prince trap.
Biddle, Smart & Co., .	Amesbury, .	"Columbus" trap.
Parry & Co., A. N., .	Amesbury, .	"The Brentwood" carriage and "The Myopia" carriage.
Bailey & Co., S. R., .	Amesbury, .	Essex trap and whalebone road wagon.
Neal & Bolser, . .	Amesbury, .	Lenox cart.
Osgood Morrill, . .	Amesbury, .	Brunswick trap.

## Group 85.

Richardson, Chas. M., .	Gloucester, .	Steering apparatus.
Cape Ann Anchor Works,	Gloucester, .	Anchors.
Boston and Lockport Block Co.	Boston, . .	Yacht and vessel supplies, pump and blocks.
Meany, John, . .	Boston, . .	Rowing-seat roller, steering gear, stretcher, etc.
Old Colony S.S. Co., .	Boston, . .	Steamer "Puritan."
Clark, Edw. S., . .	Boston, . .	Steam engines, boilers and propellers.
Essex Institute and Peabody Academy.	Salem, . .	Historical pictures of Salem vessels and pictures of events in marine history of Salem.
Stewart & Binney, . .	Boston, . .	Models of yachts, pilot boats and fishermen.
Washburn & Moen, . .	Worcester, .	Steel hawsers, steel ropes and galvanized wire and wire ropes for ships' rigging.

## DEPARTMENT OF FISH AND FISHERIES.

## Group 37.

NAME.	ADDRESS.	DESCRIPTION.
John R. Neal & Co., .	Boston, . .	Casts of fishes, charts of fishing grounds (collective exhibit).
Gloucester Board of Trade.	Gloucester, .	Algae, sponges and corals, shells, sea plant and formations, charts and maps (collective exhibit).

## Group 38.

John R. Neal & Co., ..	Boston, . .	Fishing lines, trawls, fish hooks, gill nets, nets, seines, models, fish traps, needles, fishing implements, buoys, pictures, boats, etc.
Gloucester Board of Trade.	Gloucester, .	Models of fishing vessels, ancient and modern nautical instruments, charts, compasses, glasses, marine clocks, alarms and signals, pictures, statistics, fishing lines, nets and seines, lamps, lanterns, buoys, anchors, etc.
J. W. Marston & Co., .	Boston, . .	Illustration of lobster industry, gear pots, traps, models of wells and cars.
American Net and Twine Co	Boston, . .	Seines, nets, twines, models of seines, traps and nets, netting, buoys, cordage, trawls, needles, pictures, twine, weirs (collective exhibit).

## Group 40.

John R. Neal & Co., .	Boston, . .	Pictures of models of curing establishments, cod liver oil, enred fish and fishing implements, fish curing tools, canned finnan haddies.
Gloucester Board of Trade.	Gloucester, .	Models of fish-curing plants, dried fish, also salted, smoked and enred pickled fish, barrels, tubs, kits, etc.
J. W. Marston & Co., .	Boston, . .	Model of lobster cooking establishment, model of lobster market.
A. H. Bailey, . . .	Boston, . .	Bailey's extract (patent) of clams.
Russian Cement Co., .	Gloucester, .	Fish glue, mureilage, fertilizer, hats, bonnets and shoes in which La Page's glue is used, fish skins from which the glue is made.
Gloucester Isinglass and Glue Co.	Boston, . .	Fish glue, fish fertilizer, glazed paper, adhesive plaster, corn plaster, labels, envelopes, fish skins used in making glue, etc.
E. K. Burnham, . .	Gloucester, .	Canned mackerel.
Wm. F. Nye, . . .	New Bedford, .	Watch, clock and chronometer oil.
Ezra Kelley, . . .	New Bedford, .	Fish oil for watches and small machinery.

## DEPARTMENT OF ETHNOLOGY.

NAME.	ADDRESS.	DESCRIPTION.
Peabody Museum of Archaeology.	-	Plans of the Peabody Museum, publications, etc., archaeological collection from Penobscot valley, Maine, casts and photos of ancient monuments of Honduras, model of Serpent Mound, model of Turner, group of earthworks, charts illustrating reconstruction of Mexican calendar, study of Omaha Indian music, ethnological collection from Nez Percés Indians.
Prof. Eben N. Horsford,	-	Maps, charts and books relating to voyages of Norsemen.
Albert Rosenthal, . . .	-	Engraved portraits of members of Continental Congress.
George Hunt (collector),	-	Kwakiutl house, families of Kwakiutl Indians.
E. H. Thompson, . . .	-	Fac-simile of portions of the ruins of Yucatan.
Mrs. Emma Patten (collector).	-	Pioneer log cabin.
Geo. A. Dorsey (collector).	-	Collection of crania from Peru, earthenware and woodenware vessels, pottery from northern Peru, contents of one hundred graves, contents of eleven graves, garments, implements, weapons, etc., contents of fifteen graves, contents of five graves, ruins and ancient burying ground of ancient Peru, pottery, gold, silver and copper ornaments, garments, clay images, looms, spindles, etc.
State of Massachusetts,	-	Colonial exhibit, historical collection.
Fred. A. Ober, . . .	-	Photos of places identified with voyages of Columbus.
Thomas Cummings, . .	-	Model in plaster of monument to Columbus.
Hadji Ephriam Benguiat.	-	Ceremonial objects of the Jewish religion.

## DEPARTMENT OF FINE ARTS.

## Group 139.—Sculpture.

Kitson, Henry H., . .	Boston, . . .	Music of the Sea (bronze), Portrait Bust (marble), Christ Crucified (plaster), The Age of Stone (plaster).
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## Group 140.—Oil Paintings.

Benson, Frank W., . .	Salem, . . .	Figure in White, Portrait in White, Girl with a Red Shawl.
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## REPORT OF BOARD OF

Group 140. — Oil Paintings — *Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Tarbell, Edmund C., .	Boston, . .	Girl and Horse, In the Orchard, My Sister Lydia.
Vinton, Frederick P., .	Boston, . .	Portrait of a Lady, Portrait of Augustus Flagg, Portrait of Theodore Chase, Portrait of C. C. Langdell.

## Group 141. — Water Colors.

Sears, Sarah C. (Mrs.),	Boston, . . .	A Spanish Girl, Portrait, Romola.
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## Group 143. — Engravings, Etchings and Prints.

Closson, W. B., . .	Lancaster, .	Saxon, The Mirror (after Bunker), Springtime (after E. Major), The Young Squire (after Couture), Night Moths, Winifred Dysart (after George Fuller), The Immaculate Conception (after Murillo), fragment, Mother and Child (after A. H. Thayer), Ideal Head (after A. H. Thayer), The Quadroon Girl (after George Fuller), The Listeners (after W. M. Hunt), The Mother (after Simmons), Flowers, The Irrigating Ditch, Sheep Shearers (after Millet).
Dana, William Jay, .	Brookline, .	Twilight (after J. Appleton Brown), The Mill at Cleeve (after J. Appleton Brown), Pine Woods in Canada (after F. Hopkinson Smith), Sunset (after Corot).
Kingsley, Elbridge, .	Hadley, . .	The White Mountains, New England Elms, Old Homestead (after J. F. Murphy), Late Summer (after R. Collin), Connecticut Valley, Journey Northward, The Flying Dutchman (after A. P. Ryder), A Morning, The Old Well (after J. F. Murphy), Silence (after W. Bliss Baker), Midsummer (after Daubigny), Winter Evening (after D. W. Tryon), Autumn Evening (after D. W. Tryon).

## Groups 139-145. — Architecture.

Longfellow, Alden & Harlow.	Boston, . . .	Carnegie Library and Music Hall, Pittsburg (photograph), the same — another view (photograph), first floor plan of the same, second floor plan, Carnegie Office Building, Pittsburg (photograph), City Hall, Cambridge, Mass. (photograph), House at Cambridge, Mass. (photograph).
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Group 139-145.—Architecture—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Peabody & Stearns, .	Boston, . .	South Porch of Machinery Hall, World's Columbian Exposition (water color), Office Sketches (water color).
Wheelwright, Edmund March.	Boston, . .	Primary School House, Jamaica Plain (pen drawing by Charles D. Maginnis), New Police Station for Brighton District (pen drawing by Charles D. Maginnis), Robert Gould Shaw Grammar School, West Roxbury, Mass. (pen drawing by Charles D. Maginnis), Perspective View of New City Hall for Boston (pen drawing by Charles D. Maginnis), Design for Areading Old State House (pen drawing by Charles D. Maginnis), Hospital for Contagious Diseases (pen drawing), Two Views for House for E. C. Stedman, New Castle, N. H. (photograph).

## DEPARTMENT OF HORTICULTURE.

## Group 22.

Farquhar, R. & J.,	Boston, . .	Cyclamen, primroses and cinerarias.
Massachusetts State,	Boston, . .	Ornamental plants.
Rea Brothers, . .	Norwood, .	Herbaceous plants.

## DEPARTMENT OF ELECTRICITY.

## Group 126.

A. & J. M. Anderson, .	Boston, . .	Insulators for railway construction.
Elektron Mfg. Co., .	Springfield, .	Automatic motor-starting rheostat.
Washburn & Moen, .	Worcester, .	Bare copper wire, trolley wire and hard-drawn telephone wire, insulated wire, "Salamander."

## Group 127.

Elektron Mfg. Co., .	Springfield, .	Electric motors, direct current and constant potential.
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## Group 128.

A. & J. M. Anderson, .	Boston, . .	Trolley wheels.
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## Group 129.

NAME.	ADDRESS.	DESCRIPTION.
Walworth Mfg. Co., .	Boston, . .	Poles for supporting trolley wires, etc.

## Group 132.

Electrical Forging Co., .	Boston, . .	Apparatus for heating and welding metals, apparatus for heating metals by immersing them in a liquid.
Thompson Electrical Welding Co.	Boston, . .	Apparatus for welding metals.

## Group 133.

Electric Heat Alarm Co.,	Boston, . .	Thermostat.
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## DEPARTMENT OF LIBERAL ARTS.

## Group 147.

Aid for Destitute Mothers and Children.	Boston, . .	Statistics and reports.
Boston City Hospital, .	Boston, . .	Photos, plans, etc.
Boston Associated Charities.	Boston, . .	Volumes, forms.
Boston Children's Aid Society.	Boston, . .	Charts, home library, etc.
Boston Water Board, .	Boston, . .	Relief map and photographs.
Boston Filter Co., . .	Chelsea, . .	Boston water purifier.
Cram, A. W., . . .	Haverhill, .	The Perfection Cleanout.
Emergency Hygiene Association.	Boston, . .	Reports.
Instructive District Nursing Association.	Boston, . .	Reports.
Industrial Aid Society for Prevention of Panperism.	Boston, . .	Four volumes, forms and reports.
Lyman School for Boys, Lunatic Hospital, . .	Westborough, .	Specimens of work, etc.
Massachusetts Reformatory.	Worcester, .	Reports.
McLean Hospital, . .	Sherborn, . .	Charts, etc.
Massachusetts Emergency and Hygiene Association.	Somerville, .	Charts and photos.
Normal School of Gymnastics.	Boston, . .	Maps, photographs, etc.
Overseers of the Poor, .	Boston, . .	Gymnastic apparatus.
Principal Register, .	Boston, . .	Record blanks, etc.
Posse, Baron Nils, . .	Chicopee, . .	Volume reports.
Quincy Shaw's Day Nursery.	Boston, . .	Apparatus for Swedish gymnasium hall.
		Charts and photographs.

Group 147 — *Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
State of Massachusetts, .	-	Massachusetts Prison Commission.
State of Massachusetts, .	-	Commissioners of Savings Banks.
State of Massachusetts, .	-	Maps, etc., co-operative banks, ninety-six statistical charts.
State Industrial School for Girls.	Lancaster, .	Photographs, statistics, etc.
State Board of Lunacy and Charity.	Boston, . .	Charts, photos, books, etc.
Society of St. Vincent de Paul.	Boston, . .	Record blanks, etc.
South End Industrial School.	Boston, . .	Charts, samples of work, etc.
Society for Prevention of Cruelty to Children.	Boston, . .	Reports, etc.
State Board of Health, .	Boston, . .	Maps, charts, etc., photomicrographs of adulterations, maps showing distribution of diseases by townships, maps of typhoid fever epidemics, charts showing reduction in trichinosis.
State of Massachusetts, .	-	The construction, heating and ventilating of school-houses, etc.

## Group 148.

Ayer, J. C., Co., . .	Lowell, . . .	Pharmaceutical preparations.
Doliber-Goodale Co., .	Boston, . . .	Mellin's food for infants and invalids.
Nye, Sherman R., . .	Chicopee, . .	Trusses.
Tracy, Dr. Ed. A., . .	Boston, . . .	Surgical splints for all parts of the body.

## Group 149.

Amherst College, . . .	Amherst, . . .	Photos, plans, books and college work.
Abbott Academy, . . .	Andover, . . .	School work.
Bradley, Milton & Co., .	Springfield, .	Kindergarten material.
Classical High School, .	Worcester, . .	Bound volumes, mathematics and algebra.
Clark University, . . .	Worcester, . .	University work, forty volumes, advanced researches, photos.
Crocker, Miss Lucretia,	Boston, . . .	School exhibit.
Draper, Mrs. Henry, . .	Boston, . . .	Reports, Draper catalogue, etc.
Evening Schools, Elementary and Un-graded.	Worcester, . .	School work.
Fitz, Geo. W., . . . .	Cambridge, . .	Apparatus.
Grammar School, . . . .	Boston, . . . .	Work of pupils.
Grammar School, . . . .	Everett, . . . .	Bound volume, English literature, and eleven other volumes.
Grammar Grades, . . . .	Waltham, . . .	Framed working drawings to go with manual training.
Gilman, Miss Clarabel, .	Boston, . . . .	Lessons in zoölogy.
High and Training School.	Lawrence, . . .	Language work.
Agassiz, Mrs. Louis, . .	Cambridge, . .	Lessons in natural history.

Group 149 — *Continued.*

NAME.	ADDRESS.	DESCRIPTION.
Henchman, Miss Annie P.	Boston, . .	Scientific method.
Hopkins, Mrs. L. R., .	Boston, . .	Kindergarten educational exhibit.
Mary H. Hunt, . . .	Hyde Park, .	Work in scientific temperance.
Horace Mann School for Deaf.	Boston, . .	Geography, history, language, dietation, etc.
"Harvard Annex," . .	Cambridge, .	Photos of exteriors and interiors.
High Schools of Boston.	Boston, . .	Pupils' work.
High Schools of Brookline.	—	Bound volumes, zoölogy, history, etc.
High Schools of Braintree.	—	Bound volumes, literature, astronomy, etc.
High Schools of Chelsea.	—	Bound volumes, English literature, and other high school work.
High Schools of Fall River.	—	Collective exhibit.
High Schools of Hingham.	—	Bound volumes, botany.
High Schools of Holbrook.	—	Bound volumes, Caesar, geology, English, etc.
High Schools of Malden.	—	Chemical preparations made by pupils, and full line of school work.
High Schools of Pittsfield.	—	Pupils' work.
High Schools of Quincy.	—	School work.
High School, . . . .	Salem, . .	Students' work in Latin and Greek.
High School, . . . .	Springfield, .	Framed writing and school work.
High School, . . . .	Westfield, .	Bound volumes of book-keeping and business practice.
Harvard University, .	Cambridge, .	Exhibit of the Museum, Astronomical Observatory, Col. University, exhibit of the Department of Physics, Chemistry, Graduate School, Lawrence Scientific School, Veterinary School, Dental School, Divinity School, Medical School, Law School, collective exhibit of the Department of Geology.
Immaculate Conception School.	Malden, . .	Eighteen volumes, class work, drawing and kindergarten work.
Lasell Seminary, . . .	Auburndale, .	School work.
Mechanic Arts High School.	Boston, . .	Photographs of all Boston battalions, illustrations of systems of physical culture, school work.
Massachusetts State Normal Art School.	Boston, . .	School work.
Massachusetts Institute of Technology.	Boston, . .	Books, theses, shop work, etc.
Museum of Fine Arts, School of Drawing and Painting.	Boston, . .	Drawing in pencil from objects, from a decorative point of view, and water colors.
Mount Holyoke College.	South Hadley,	Catalogue and full line of college work.
Massachusetts State Board of Education.	—	Charts showing attendance in evening schools, chart showing expenses, text books, supervision of public schools, transportation of pupils of public school, education exhibit, map of location and number of free public libraries, report of State Board of Education, the public statistic of Massachusetts.

Group 149—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Normal School, . . .	Worcester, .	Framed photos and full line of school work.
Normal School, . . .	Westfield, .	School work.
Normal Training School,	Holyoke, .	Bound volume, history and course of study, Normal Training School.
Notre Dame Academy, .	Boston, .	Five volumes, class work.
Notre Dame Academy, .	Roxbury, .	Three volumes, class work.
Our Lady Perpetual Light.	Roxbury, .	Eight volumes class work, one volume surveying.
Perkins Institution and Massachusetts School for the Blind.	South Boston, .	Embossed books, zoological, botanical and physical, models in clay.
Private Institution, Feeble Minded.	Barre, .	Pupils' work.
Primary Schools and Grammar Schools.	Pittsfield, .	Pupils' work.
Primary Schools, . . .	Boston, .	Pupils' work.
Public Schools, . . .	Boston, .	School work, primary schools, school work in grammar schools, school work in high schools.
Public Schools (grammar grade).	Brookline, .	Pupils' work.
Public Schools, . . .	Chelsea, .	Drawings illustrating course in drawing.
Public Schools, . . .	Medford, .	Portfolio of drawings and full line of school work.
Public Schools, . . .	North Adams, .	School work and drawings.
Public Schools, . . .	Pittsfield, .	School work.
Public Schools, . . .	Quincy, .	Bound volumes, photographs of public schools and school work.
Public Schools, . . .	Salem, .	Framed photographs of school interior and pupils' work.
Public Schools, . . .	Somerville, .	School work.
Public Schools, . . .	Shrewsbury, .	Pupils' work.
Public School System of Boston.	-	School work of all kinds, charts, photos, etc.
Public School System of Massachusetts.	-	The public statistics and forms used in administration and statistics.
Prang Educational Co.,	Boston, .	Prang course of art education.
Sisters of Notre Dame, .	-	Work for eleven schools.
St. Mary's School, . . .	Lynn, .	Three volumes, class work.
St. Joseph's School, . .	Waltham, .	Two volumes, essays, botany, etc.
Tufts College, . . .	College Hill, .	Illustration of college grounds, buildings, course of study, appliances and results.
Wellesley College, . . .	Wellesley, .	Case of statistical records, specimens of work, catalogues, school work, etc.
Williams College, . . .	Williamstown, .	Photos of Williams College.
Richardson, Mrs. E. A.,	Massachusetts,	Papers from teachers' school of service, collective exhibit.
Richards, Mrs. E. H., .	Boston, .	Chemical papers.
Smith College, . . .	Northampton, .	Maps of grounds of college and full line of college work.
Shaw, Quincy A., . . .	Jamaica Plain, .	Sloyd training school.
Society to Encourage Study at Home.	Boston, .	Pamphlets, photos, articles illustrating history.
State Normal School, .	Bridgewater, .	Framed photos of Normal School and work of students.
St. John's School, . . .	Canton, .	Four volumes, class work and kindergarten work.
St. Joseph's School, . .	Chicopee, .	Class work and three volumes type-writing.



## Group 150.

NAME.	ADDRESS.	DESCRIPTION.
Silver, Burdett & Co., .	Boston, . .	Text books, charts, maps, etc.
Boston Athenaeum, .	Boston, . .	Library charging system.
Estes & Lauriat, . .	Boston, . .	Books.
Ginn & Co., . . . .	Boston, . .	Music, school books, charts, etc.
Houghton, Mifflin & Co.,	Boston, . .	Books, magazines, special exhibit typ. illustrations.
Hall, Miss Mary L., .	Boston, . .	—
Heath, D. C., & Co., .	Boston, . .	School books, charts, maps, etc.
Lothrop, D., & Co., .	Boston, . .	Books, etc.
Library Bureau, . .	Boston, . .	Tables, trucks, etc.
Merriam, G. & C., Co.,	Springfield,	Webster's Dictionary.
New England Publish- ing Co.	Boston, . .	School books and periodicals.
Prang, L., & Co., . .	Boston, . .	Chromo-lithographic art prints.
Post, Alfred A., . .	Boston, . .	Volapuk literature.
Plimpton, Geo. A., .	Boston, . .	Historical collection of school books.
Salem Public Library, .	Salem, . .	Books, catalogues, etc.
Salem Press Publishing and Printing Co. and Essex Institute.	Salem, . .	Books, charts and engravings.
Wright, Julia McNair, .	Boston, . .	Books.

## Group 151.

Blair Camera Co., . .	Boston, . .	Photo. apparatus.
Buff & Berger, . . .	Boston, . .	Surveyors', engineers' instruments.
Boston Cash Register Co.,	Northampton,	Self-calculating register.
Richards, Robert H., .	Boston, . .	Telescope.

## Group 152.

Hayden, Sophia, . .	Boston, . .	Woman's building.
Olmsted, Olmsted & Co.,	Boston, . .	Landscape architecture.
Peabody & Stearns, .	Boston, . .	Colonnade of the Obelisk.
Peabody & Stearns, .	Boston, . .	Massachusetts State Building.
Peabody & Stearns, .	Boston, . .	Machinery Hall.
Wall, Wm. E., . . .	Somerville, .	Graining.

## Group 153.

United States Mailing Case Co.	Boston, . .	Wood screw cap mailing cases.
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## Group 154.

Bangs, C. H., . . . .	Boston, . .	Drug store furnishings.
Lamson Consolidated Store Service Co., . .	Boston, . .	Cash carriers, mailing cases, etc.
Standard Autograph Time Recorder.	Boston, . .	Employee's time recorder.

## Group 156.

NAME.	ADDRESS.	DESCRIPTION.
Boston Society of Home Savings.	Boston, . .	Charts.
Massachusetts Co-operative Banks.	Boston, . .	Series of charts and publications.

## Group 157.

United Society of Christian Endeavor.	Boston, . .	Publication showing development and progress of United Society of Christian Endeavor.
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## Group 158.

Beach, Mrs. H. H. A., .	Boston, . .	Musical composition.
Bird, E. E., . . .	Boston, . .	Musical composition.
Barnette, Amos M. R., .	Boston, . .	Musical composition.
Chickering & Sons, .	Boston, . .	Pianos.
Crowninshield, Mary Bradford.	Boston, . .	Musical composition.
Downs, S. C., . . .	Boston, . .	Musical composition.
Ditson, Oliver, Co., .	Boston, . .	Sheet music and music books.
Emerson, Elizabeth, .	Boston, . .	Collection of songs.
Everett Piano Co., .	Boston, . .	Pianos.
Fyfe, B., . . . .	Boston, . .	Musical composition.
Farley, Marian, . .	Boston, . .	Song.
Hood, Helen, . . .	Boston, . .	Musical composition.
Hale, Irene, . . .	Boston, . .	Song.
Hallett & Davis Piano Manufacturers.	Boston, . .	Pianos.
Haynes, John C., & Co.,	Boston, . .	Musical instruments.
Leibetz, Moritz, . . .	Boston, . .	Musical composition.
Lewing, Fraulein Adelaïd.	Boston, . .	Musical composition.
Lord, Anna L., . . .	Boston, . .	Musical composition.
Lang, N. E., . . . .	Boston, . .	Musical composition.
Mason & Rich, . . .	Worcester, .	Vocalion.
Mason & Hamlin Organ and Piano Co.	Boston, . .	Pianos and organs.
McFarlane, Mrs. R., .	Boston, . .	Musical composition.
Prescott, Ella E., . .	Boston, . .	Musical composition.
Roelfson, Mrs. Emily R.,	Boston, . .	Musical composition.
Rogers, Mrs. Clara K., .	Boston, . .	Musical composition.
Rene, B., . . . .	-	Musical composition.
Rand, Josephine, . . .	Boston, . .	Method of singing.
Spaulding, Florence A.,	Boston, . .	Musical composition.
Tooker, Minnie, . . .	Boston, . .	Musical composition.
Vanghn, E. Elliott, . .	Boston, . .	Musical composition.
Vose & Sons, . . . .	Boston, . .	Pianos.
Viardot, L. H., . . .	Boston, . .	Collection of songs.
Washburn & Moen Mfg. Co.	Worcester, .	Perfectd "steel piano wire."

## APPENDIX D.

## DEPARTMENT OF MINES AND MINING.

## Group 42.

NAME.	ADDRESS.	DESCRIPTION.
Amherst College, . .	Amherst, . .	Collection of ores and gems in the rough.
Angell, C. L., . . .	Huntington, . .	Collection of ores and gems in the rough.
Brigham, George L., . .	Bolton, . . .	Collection of ores and gems in the rough, fossils.
Bryant, Miss A. A., . .	Mansfield, . .	Auriferous iron pyrites.
Boston Society of Natural History.	Bridgewater, . .	Calamite.
Clark, Daniel, . . .	Tyringham, . .	Collection of ores and gems in the rough.
Conant, Dr. Thomas, . .	Gloucester, . .	Micaceous ilmenite, limonite, crystals, amazonstone, orthoclase.
Cotting, J. J., . . .	Fitchburg, . .	Hornblende, muscovite.
Cowles, E. L., . . .	Chester, . . .	Ilmenite, crystal quartz, garnet, zoisite.
Davis, E. G., . . .	Leominster, . .	Collection of ores and gems in the rough.
Davis Sulphur Ore Co.,	Davis, . . .	Iron pyrites, fossils.
Emerson, Charles B., . .	Bradford, . .	Galena with chalcopryite.
Fletcher, Miss Emily, . .	Westford, . .	Collection of minerals and gems.
Gardner, John L., . . .	Boston, . . .	Prehnite.
Hobbs, Dr. W. H., . . .	Madison, Wis.,	Collection of ores and gems in the rough.
Harvard University, . .	Cambridge, . .	Collection of fossils.
Johnson, Charles, . . .	Easthampton, . .	Collection of ores and gems in the rough.
Kennedy, Harris, . . .	Roxbury, . . .	Micaceous hematite, rhodonite, prehnite.
Litchfield, Silas, . . .	Fitchburg, . .	Beryl, tourmaline.
Lucas, Dr. H. S., . . .	Chester, . . .	Magnetite, diaspore, cornudophilite.
Macia, Elis, . . . .	Chester, . . .	Collection of ores and gems in the rough.
Osgood, Alfred, . . .	Newburyport, . .	Galena with chalcopryite.
Peabody Academy of Science.	Salem, . . .	Collection of ores and gems in the rough.
Richmond Iron Works,	Richmond, . .	Limonite.
Rockport Granite Co., . .	Rockport, . .	Molybdenite, amazonstone, smoky quartz.
Sands, H. H., . . . .	New York City,	Collection of ores and gems in the rough.
State of Massachusetts,	-	Collection of ores and gems in the rough.
Stearns, Charles A., . .	Boston, . . .	Collection of ores and gems in the rough.
Stevens, A. L., . . .	Mansfield, . .	Barite.
	N. H.	

## Group 42—Concluded.

NAME.	ADDRESS.	DESCRIPTION.
Stockbridge Iron Co.,	West Stock- bridge.	Limonite.
Stoughton, T. M.,	Turner's Falls,	Fossils.
Tarr, R. S.,	Gloucester,	Molybdenite, opal, amethyst, ortho- clase, amazonstone.
Thatcher, A. R.,	Haydensville,	Collection of ores and gems in the rough.
Weeks, H. A.,	Chesterfield,	Collection of ores and gems in the rough.
Whittle, C. L.,	Cambridge,	Collection of ores and gems in the rough.
Woodworth, J. B.,	Cambridge,	Melanolite.
Worcester Polytechnic Institute.	Worcester,	Collection of ores and associated minerals.

## Group 43.

Northwestern Land & Coal Co.	Boston,	Compound to promote combustion of coal.
Woodworth, J. B.,	Cambridge,	Anthracite coal.

## Group 44.

Amherst College,	Amherst,	Schist.
Badger Bros.,	Quincy,	Granite.
Beattie, Wm., & Sons,	Fall River,	Granite.
Blanchard, W. D.,	Leominster,	Granite.
Cape Ann Granite Co.,	Bay View,	Granite.
Darling Bros.,	Milford,	Granite.
Fletcher Bros.,	Chelmsford,	Granite.
Flyant Granite Co.,	Mouson,	Granite.
Granite Manufacturers' Association.	Quincy,	Granite.
Gross Bros.,	Lee,	Marble.
Hathaway, Prof. F. R.,	Winchendon,	Granite and schist.
Hobbs, Dr. W. H.,	Madison, Wis.,	Gneiss, schist, marble, quartzite, limestone and shale.
Hudson & Chester Granite Co.	Chester,	Granite.
Kane & Leary,	Fitchburg,	Granite.
Kittredge & Leavitt Granite Co.	Leominster,	Gneiss granite.
Lanesville Granite Co.,	Lanesville,	Granite.
Merrill, J. A.,	Cambridge,	Gneiss and slate.
Middlesex Marble Co.,	Boston,	Marble.
McCaulliff, J.,	Fitchburg,	Granite.
Milford Pink Granite Co.	Milford,	Granite.
Munson, J. C.,	Van Deusen- ville.	Marble.
Norcross Bros.,	Worcester,	Granite and sandstone.
Peabody Academy of Science.	Salem,	Granite, syenite, felsite breccia and hornblende.
Pumpelly, R.,	New Marl- borough.	Conglomerate gneiss.
Rand & Co.,	North Adams,	Marble.

Group 44—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Rockport Granite Co., . State of Massachusetts, .	Rockport, . —	Granite. Granite, augite, syenite, felsite, breccia, porphyries, gneiss, marble, serpentine, soapstone, conglomer- ate, schist, limestone, sandstone, etc.
Truesdell & Emery, .	West Stock- bridge,	Marble.
Whittle, C. L., .	Cambridge, .	Slate.

## Group 45.

Amherst College, . .	Amherst, . .	Corundum crystals.
Clark, Daniel, . .	Tyringham, . .	Emery.
Lucas, Dr. H. S., . .	Chester, . .	Margarite with emery and corundum.
Macia, Elis, . .	Chester, . .	Emery, margarite with emery.
State of Massachusetts, .	—	Emery.
Weeks, H. A., . .	Chesterfield, . .	Corundum crystals.
Whittle C. L., . .	Cambridge, . .	Emery and corundum.

## Group 46.

Amherst College, . .	Amherst, . .	Graphite.
Blandford Brick & Tile Co.	Boston, . .	Kaolinite.
Clark, Daniel, . .	Tyringham, . .	Kaolinite.
Davis, E. G., . .	Leominster, . .	Graphite.
Hobbs, Dr. W. H., . .	Madison, Wis., . .	Asbestos.
Phoenix Mfg. Co., . .	Taunton, . .	Crucibles.
State of Massachusetts, .	—	<i>a</i> Kaolinite. <i>b</i> Tale and steatite. <i>c</i> Asbestos.
Weeks, H. A., . .	Chesterfield, . .	Graphite.
Worcester Polytechnic Institute.	Worcester, . .	Graphite.

## Group 49.

Howe, Henry M., .	Boston, . .	Steel, illustrating effect of heat treat- ment.
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## Group 51.

Amherst College, . .	Amherst, . .	Copper pyrites in schist.
Clark, Daniel, . .	Tyringham, . .	Copper pyrites.
Davis Sulphur Ore Co., .	Davis, . .	Copper pyrites.
State of Massachusetts, .	—	Copper pyrites.

## Group 58.

MacKay, H. S., . .	Boston, . .	Electric drill for stone quarrying, electric stone-carving machines.
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## Group 61.

NAME.	ADDRESS.	DESCRIPTION.
MacKay, H. S., . . .	Boston, . . .	Electric drill for mining.

## Group 63.

Bradley Fertilizer Co., .	Boston, . . .	Elevator for rolling mill.
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## Group 64.

Bradley Fertilizer Co., .	Boston, . . .	Roller mills.
Sturtevant Mill Co., .	Boston, . . .	Mill for crushing and grinding ore and other material.

## Group 67.

Houghton, Mifflin & Co.,	Boston, . . .	Books on coal mining and geology.
Sturtevant Mill Co., .	Boston, . . .	Model of mill.

## Group 68.

Lynn, City of, . . .	. . .	First iron casting ever made in America.
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## DEPARTMENT OF MANUFACTURES.

## Group 87.

Burnett, Jos., & Co., 27 Central Street.	Boston, . . .	Flavoring extracts, etc.
India Alkali Works, 75 Broad Street.	Boston, . . .	Alkalies and alkaline earths.

## Group 88.

Boston Blacking Co., .	Boston, . . .	Blacking, dressing, cement, etc.
Dexter Bros., 55 Broad Street.	Boston, . . .	Shingle stains.
Gondolo Tannin Co., .	Boston, . . .	Oak wood and chestnut tannin.
Mitchell Stain Mfg. Co.,	Lynn, . . .	Bottom finishings, stains for shoes.



Group 88—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
White, S. A., 65 High Street.	Boston, . .	Blackings, dressings and stains.
Whiting, John L., & Son, High and Purchase Streets.	Boston, . .	Brushes.
Whittemore, Bros. & Co., 237 Albany Street.	Boston, . .	Harness dressings, boot and shoe blacking.
Wiggin & Stevens, . .	Malden, . .	Sandpaper.
Wood, Geo. H., Co., . .	Boston, . .	Cements, inks, wax and dressings.
Woods, Henry, Sons Co., 436 Atlantic Avenue.	Boston, . .	Paints and colors.

## Group 89.

Brown, L. L., Paper Co.,	Adams, . .	Ledger and record paper.
Crane Bros., . . . .	Westfield, . .	Linen, record and writing paper.
Crane, Z. & W. M., . .	Dalton, . .	Writing paper and stationery.
Crane & Co., . . . .	Dalton, . .	Bank note and parchment paper.
Franklin Typewriter, 76 Milk Street, . . . .	Boston, . .	Typewriters and supplies.
Hurlbut Paper Mfg. Co.,	South Lee, . .	Writing paper and envelopes.
Mills, Knight & Co., 60 Pearl Street.	Boston, . .	Fancy leather work.
Weston, Byron, . . . .	Dalton, . .	Ledger and record paper.
Whiting Paper Co., . .	Holyoke, . .	Paper, envelopes, etc.
Williston, A. Lyman, . .	Northampton, .	Indelible ink.

## Group 90.

Derby & Kilmer Desk Co., 93 Causeway Street.	Boston, . .	Office furniture.
Metropolitan Air Goods Co., 7 Temple Place.	Boston, . .	Air mattresses, cushions, etc.
Plympton, H. R., & Co., 1077 Washington Street.	Boston, . .	Sofas and bed lounges.

## Group 91.

Fiske, Homes & Co., . .	Boston, . .	Bricks and terra cotta.
Hills, C. M., . . . .	Cambridge, . .	Painted china.
Low Art Tile Co., . . .	Chelsea, . .	Art tiles.

## Group 92.

Granite Manufacturers' Association.	Quincy, . .	Granite monuments.
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## Group 95.

NAME.	ADDRESS.	DESCRIPTION.
Continental Stained Glass Works, 440 Tremont Street.	Boston, . .	Stained glass.

## Group 97.

Pairpoint Mfg. Co., .	New Bedford, .	Silver-plated ware.
Tufts, Jas. W., . .	Boston, . .	Silver-plated ware.

## Group 98.

Blackington, W. & S., .	Attleborough, .	Plated chains.
Child, D. R., & Co., .	North Swansea,	Cuff and collar buttons.
Summons, R. F., & Co.,	North Attleborough.	Jewelry.

## Group 99.

American Waltham Watch Co.	Waltham, .	Watch movements.
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## Group 100.

McCullum, Constable Hosiery Co.	Holyoke, . .	Silk hosiery.
Nonotuck Silk Co., .	Florence, Leeds, Haydenville.	Machine twist, underwear.
Skinner, Wm., Mfg. Co.,	Holyoke, . .	Serges, linings and braids.

## Group 102.

Appleton Co., 48 Franklin Street.	Boston, . .	Eider downs, shirtings, etc.
Arlington Mills, . .	Lawrence, .	Fine cotton, single or twisted.
Barnaby Mfg. Co., .	Fall River, .	Zephyr ginghams.
Clarendon Mills, . .	West Boylston,	Crocheted quilts.
Clifton Mfg. Co., . .	Boston, . .	Brown cottons.
Conant Mills, . . .	Fall River, .	Cambrie muslins.
Davol Mills, . . .	Fall River, .	Bleached muslins.
Dwight Mills, . . .	Chicopee, .	Brown, bleached cottons, etc.
Fisher Mfg. Co., . .	Fisherville, .	Woven cotton goods.
Finlayson, Bonsfield & Co.	North Grafton,	Threads for shoes and leather.
Glasgow Co., . . .	South Hadley Falls.	Cotton goods and ginghams.
Globe Yarn Mills, . .	Fall River, .	Cotton yarns.

Group 102—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Hadley Co., . . . .	Holyoke, . . . .	Cotton yarns and threads.
Knitted Mattress Co., .	Canton Junction.	Cotton fabrics.
Lancaster Mills, 48 Franklin Street.	Boston, . . . .	Ginghams.
Leeson, J. R., & Co., 226 Devonshire Street.	Boston, . . . .	Threads for boots and leather.
Lyman Mills, . . . .	Holyoke, . . . .	Brown and bleached cottons, etc.
Merrimaek Mfg. Co., 87 Milk Street.	Boston, . . . .	Printed cotton goods.
Methuen Co., . . . .	Boston, . . . .	Fancy cotton fabrics, etc.
Naumkeag Steam Cotton Co.	Salem, . . . .	Sateens, cotton goods, etc.
Pacific Mills, . . . .	Lawrence, . . . .	Cotton fabrics.
Pemberton Co., . . . .	Boston, . . . .	Cotton fabrics.
Sanford Spinning Co., .	Fall River, . . . .	Cotton yarns.
Stevens Linen Works, .	Boston, . . . .	Linen crash.
Wamsutta Mills, . . . .	New Bedford, . . . .	Sheetings, fine white goods, etc.
Whittenton Mfg. Co., .	Taunton, . . . .	Colored cotton fabrics.
Woods, Joseph W., & Sons.	Boston, . . . .	Colored and printed cotton goods.

## Group 103.

Arlington Mills, . . . .	Lawrence, . . . .	Worsted yarns, dress goods, etc.
Assabet Mfg. Co., . . . .	Maynard, . . . .	Fancy flannels, suitings, etc.
Ballardvale Mills, . . . .	Ballardvale, . . . .	Woollen yarns, flannels.
Belvidere Woollen Mfg. Co.	Lowell, . . . .	Flannel and woollen dress goods.
Berkeley Woollen Co., .	Wales, . . . .	Fine kerseys and meltons.
Blackington, S., Woollen Co.	North Adams, . . . .	Fancy cassimeres, etc.
Blackstone Woollen Co.,	Blackstone, . . . .	Cassimeres, fine kerseys.
Calumet Woollen Co., .	Uxbridge, . . . .	Fancy woollen cassimeres.
Carlton, E. G., & Sons, .	Rochdale, . . . .	Flannels and woollen goods.
City Mills Co., . . . .	City Mills, . . . .	Felt goods.
Clinton Worsted Co., .	Clinton, . . . .	Worsted suitings.
Connor Bros., . . . .	Holyoke, . . . .	Beavers, etc.
Farr Alpaca Co., . . . .	Holyoke, . . . .	Worsted goods, etc.
French & Ward, . . . .	West Stoughton.	Blankets, flannels, etc.
Germania Mills, . . . .	Holyoke, . . . .	Beavers, kerseys, etc.
Hartley, F., . . . .	Lawrence, . . . .	Yarn and carbonized wool.
Hecla Mills, . . . .	Uxbridge, . . . .	Woollen goods.
Massachusetts Mohair Plush Co.	Boston, . . . .	Mohair plush.
Merrimaek Woollen Mills.	Draent, . . . .	Cloakings, dress goods, etc.
North Adams Mfg. Co.	North Adams, . . . .	Fancy cassimeres.
Pacific Mills, . . . .	Lawrence, . . . .	Wool dress fabrics.
Saxon Worsted Co., . .	Franklin, . . . .	Fancy worsted.
Stevens, Charles A., & Co.	Ware, . . . .	White and worsted yarns, etc.
Sterling Mills, . . . .	Lowell, . . . .	Woollens, flannels, etc.
Talbot Mills, . . . .	North Billerica, . . . .	Woollen goods, etc.
Washington Mills Co., .	Lawrence, . . . .	Woollen and worsted yarns, etc.

## Group 104.

NAME.	ADDRESS.	DESCRIPTION.
Aborn, C. H., . . .	Lynn, . . .	Ladies' boots and shoes.
Amesbury Shoe Co., . .	Amesbury, . .	Shoes and slippers.
Anderson, J. F., . . .	Boston, . . .	Full dress coat and waistcoat.
Ash, Wm. T., . . .	Lynn, . . .	Shoes and slippers.
Bartlett, Jno., & Co., . .	Lynn, . . .	Boots and shoes.
Batcheller, E. & A. H., Co., 106 Summer Street.	Boston, . . .	Boots and shoes.
Blake, Harold F., . . .	Haverhill, . .	Shoe tips.
Bridgeport & Hub Gore Makers.	Boston, . . .	Elastic for shoes.
Coburn, Geo. M., & Co., 22 High Street.	Boston, . . .	Shoes and slippers.
Consolidated Adjustable Shoe Co.	Lynn, . . .	Ladies' boots and shoes.
Davis, Geo. C., . . .	Lynn, . . .	Ladies' boots and shoes.
Faunce & Spinney, . . .	Lynn, . . .	Boots and shoes.
Flynt, Mrs. O. P., . . .	Boston, . . .	Corsets and waists.
Fox, Chas. K., . . .	Haverhill, . .	Shoes and slippers.
Fuller, Geo., & Co., . . .	Lynn, . . .	Wells, turus, boots and shoes.
Goodrich, Hazen B., . .	Haverhill, . .	Boots, shoes, slippers.
Greenman, Chas. E., . .	Haverhill, . .	Soles and leather.
Grovers, J. J., Sons, . .	Lynn, . . .	Boots and shoes.
Harney Bros., . . .	Lynn, . . .	Boots and shoes.
Herriek, G. W., & Co.	Lynn, . . .	Boots and shoes.
Hoag & Heath, . . .	Lynn, . . .	Boots and shoes.
Hodgkins & Hodgkins, .	Boston, . . .	Gentleman's hunting suit.
Hollander, L. P., & Co.	Boston, . . .	Boys' clothing.
Hub Gore Makers, . . .	Boston, . . .	Elastic for shoes.
Hutchinson, F. E., . .	Haverhill, . .	Ladies' shoes and slippers.
Messenger Bros. & Jones.	Boston, . . .	Double-breast box driving coat.
Morse Bros. & Co., . .	Haverhill, . .	Shoes and slippers.
Murphy Bros., . . .	Lynn, . . .	Boots and shoes.
New Home Sewing Machine Co.	Orange, . . .	Sewing machines.
New York Shoe Mfg. Co.	Lynn, . . .	Boots and shoes.
Plant, Thos. G., . . .	Lynn, . . .	Ladies' boots and shoes.
Renton, J. B., . . .	Lynn, . . .	Heels and lifts.
Rice & Hutchins, . . .	Boston, . . .	Boots and shoes.
Rumsey Bros., . . .	Lynn, . . .	Boots and shoes.
Shillaber & Co., . . .	Lynn, . . .	Women's boots and shoes.
Smith, A. F., . . .	Lynn, . . .	Boots and shoes.
Somers, Frank D., . . .	Boston, . . .	Double-breasted frock coat.
Sutherland, D. A., . . .	Lynn, . . .	Boots and shoes, ties, etc.
Swain, J. F., & Co., . .	Lynn, . . .	Misses' and children's boots and shoes.
Turner, J. S., . . .	Rockland, . .	Men's shoes.
Waukenhose Co., 76 Chauncy Street.	Boston, . . .	Knit goods.
Williams, Clarke & Co.	Lynn, . . .	Boots and shoes.
Woodman & Howes, . .	Haverhill, . .	Shoes and slippers.
Worcester Corset Co., .	Worcester, . .	Corsets.
Wright & Richards, . .	Rockland, . .	Boots and shoes.

## Group 108.

NAME.	ADDRESS.	DESCRIPTION.
Ball and Socket Fastener Co., 58 Summer Street.	Boston, . .	Fasteners for gloves, etc.

## Group 109.

American Rubber Co., .	Cambridgeport.	Mackintoshes, rubber clothing, etc.
Bailey, C. J., & Co., 22 Boylston Street.	Boston, . .	Rubber brushes and novelties.
Boston Rubber Shoe Co., 245 Causeway Street.	Boston, . .	Rubber boots and shoes, curios from South America.
Elastic Tip, . . . .	Boston, . .	Rubber specialties.
Stoughton Rubber Co., 44 Summer Street.	Boston, . .	Rubber garments.
Towers, A. J., 18 Summer Street.	Boston, . .	Waterproof clothing.

## Group 110.

Converse, Morton E., & Co.	Winchendon, .	Toys and novelties.
Parker Bros., . . . .	Salem, . . .	Games.

## Group 111.

Gordon, S. J., 224 Fremont Street.	Boston, . .	Fancy leather goods.
Harwood, Chas. E., Co.,	Lynn, . . .	Counters, insoles, taps, turns, shanks, etc.
Hillard, R. E., . . .	Lynn, . . .	Soles and leather.
Kent & Smith, . . .	Lynn, . . .	Various kinds and colors of shoe stains.
Kistler, Lesh & Co., 97 South Street.	Boston, . .	Sole leather.
Shaw Leather Co., 159 Summer Street.	Boston, . .	Grain split and calf leather and shoes of same.
Smith's, Lyman, Sons Co.	Norwood, . .	Sheep and lamb skin, linings, etc.
Stiles & Winslow, . .	Boston, . .	Colored morocco, goat and sheep skin.

## Group 113.

Smith & Wesson, . .	Springfield, .	Pistols and revolvers.
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## Group 115.

Magee Furnace Co., 38 Union Street.	Boston, . .	Furnaces, stoves and ranges.
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Group 115 — *Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Ridgeway Furnace Co., 76 Union Street.	Boston, . .	Furnaces.
Smith & Anthony Stove Co.	Boston, . .	Heaters, ranges, furnaces.
Woods, Sherwood & Co.,	Lowell, . .	White wire household goods.

## Group 116.

Low Art Tile Co., . . .	Chelsea, . .	Soda fountain.
Puffer, A. D., & Sons, .	Boston, . .	Soda water apparatus.
Smith & Anthony Stove Co.	Boston, . .	Kettles.
Tufts, J. W., . . .	Boston, . .	Soda water apparatus.

## Group 117.

Clinton Wire Cloth Co.,	Clinton, . .	Wire of all kinds.
Translucent Fabric Co.,	Clinton, . .	Translucent fabrics for windows.
Washburn & Moen Mfg. Co.	Worcester, .	Wire of all kinds.

## Group 118.

Desmond, Cornelius, .	Pittsfield, .	Horseshoes.
Hogan, John, . . .	Fitchburg, .	Horseshoes.
Putnam Nail Co., . .	Boston, . .	Horseshoe nails.

## Group 119.

Ames, Oliver, Sons Cor- poration	North Easton, .	Shovels, spades, etc.
Atlas Tack Corporation,	Boston, . .	Tacks, brads, etc.
Barney & Berry, . . .	Springfield, .	Ice and roller skates.
Blount Mfg. Co., 180 Washington Street.	Boston, . .	Hardware specialties.
Buck Bros., . . . .	Millbury, . .	Light edge tools.
Buck, Chas., . . . .	Millbury, . .	Edge tools.
Norton Door Check and Spring Co., 505 Sears Building.	Boston, . .	Door check and spring doors.
Snell Mfg. Co., . . .	Fiskdale, . .	Boring tools.
Torrey, J. R., Razor Co.,	Worcester, .	Razors.

## Group 120.

Smith & Anthony Stove Co.	Boston, . .	Water-closets, etc.
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## REPORT OF BOARD OF

## Group 121.

NAME.	ADDRESS.	DESCRIPTION.
Brown, Mrs. Harriet A.,	Boston, . .	Rule for dressmaking.
Meyers Putz Pomade Co.,	Boston, . .	Liquid metal polish.
271 Franklin Street.		
Stearns, Mrs. B. A., . .	Woburn, . .	Dress-cutting system.
White, Otis C., 150	Boston, . .	Ball-and-socket cone joints.
Beacon Street.		

## DEPARTMENT OF MACHINERY.

## Group 69.

Ashton Valve Co., . .	Boston, . .	Valves and gauges.
Chapman Valve Mfg.	Indian Orchard,	Steam valves.
Co.		
Deane Steam Pump Co.,	Holyoke, . .	Pumps.
Fales, Edward, . . .	Boston, . .	Grate bars.
Graton & Knight, . .	Worcester, .	Belting.
Heath, Laban, & Co., .	Boston, . .	Water shut-off machine.
Hersey Mfg. Co., . . .	South Boston, .	Pumps.
Morse Rotary Engine	Boston, . .	Engine.
Co.		
Puffer, A. D., & Sons, .	Boston, . .	Soda water machinery.
Richardson, Charles H.,	Gloucester, .	Ice crusher.
Secco, Henri, . . . .	Boston, . .	Lifting jack.
Steele, E. B., . . . .	Marlborough, .	Derrick.
Tufts, James W., . . .	Boston, . .	Soda water machinery.
Walworth Mfg. Co., . .	Boston, . .	Valves, cocks, etc.

## Group 70.

Coburn Trolley Track	Holyoke, . .	Store ladders, fire escapes, etc.
Mfg. Co.		

## Group 71.

American Improved	Boston, . .	Metal-working machines.
Wrench Co.		
Beandry Tool Co., . .	Boston, . .	Power hammers and forging presses.
Brainard Milling Ma-	Hyde Park, .	Milling machines.
chine Co.		
Eaton, Geo. H., & Co., .	Boston, . .	Presses and shears for working sheet
		metal.
Hurlbnt, Rogers Ma-	South Sudbury,	Cutting-off lathes.
chine Co.		
Morse Twist Drill and	New Bedford, .	Machinist tools.
Machine Co.		
Prentice Bros., . . . .	Worcester, .	Metal-working machines.
Reed, F. E., & Co., . .	Worcester, .	Lathes.

## Group 72.

NAME.	ADDRESS.	DESCRIPTION.
American Heeling Machine Co.	Broekton, .	Lightning heeling machine.
Bertrand Lock Stitch Sewing Machine Co.	Boston, . .	Sewing machines.
Brett, Henry W., . .	Boston, . .	Shoe-upper cementing machine.
Cheney Bigelow Wire Works.	Springfield, .	Wire for paper-making.
Crompton Loom Works.	Worcester, .	Looms of many kinds.
Fenno, Isaac, . . .	Boston, . .	Cloth-cutting machine.
Globe Buffer Co., . .	Boston, . .	Shoe machinery.
Goodyear Shoe Manufacturing Co.	Boston, . .	Shoe machines.
Kitson Machine Co., .	Lowell, . .	Cotton goods machine.
Knowles Loom Works, .	Worcester, .	Looms of many kinds.
Lowell Machine Shop, .	Lowell, . .	Cotton goods machine.
Lufkin, R. H., . . .	Boston, . .	Vamp-folding machine.
McKay Metallic Fastening Association.	Boston, . .	Shoe machinery.
McKay & Bigelow, . .	Boston, . .	Shoe machinery.
Namikeag Buffing Machine Association.	Beverly, . .	Shoe machinery.
Reece Button Hole Machine Co.	Boston, . .	Shoe machinery.
Sawyer Leather Machinery Co.	Boston, . .	Machine for measuring leather.
Stanley Mfg. Co., . .	Boston, . .	Shoe machinery.
Standard Rivet Co., .	Boston, . .	Rivets and machines for driving same.
Steele, A. H., . . .	Worcester, .	Weaving baton shuttles, etc.
Tubular Rivet Co., . .	Boston, . .	Rivets and rivet-setting machine.
Union Heel Trimmer Co.	Boston, . .	Boot and shoe heel trimming machine.
Vaughn Machinery Co.,	Salem, . .	Hide and leather machinery.
Wire Grip Fastening Co.,	Boston, . .	Shutting and nailing machines.

## Group 73.

E. G. Cunningham, .	Worcester, .	Band-saw blades and jig saws, filing, setting and brazing machines.
Simonds Mfg. Co., . .	Fitchburg, .	Saws and machine knives.
S. A. Woods Machine Co.	Boston, . .	Wood-working machinery

## Group 74.

Elliot Machine Co., .	Newton, . .	Thread-stitching machine.
Golding & Co., . . .	Boston, . .	Printing presses and paper folders.
McIndoe Bros., . . .	Boston, . .	Cylinder printing presses.

## Group 77.

Faneuil Watch Tool Co.,	Boston, . .	Watchmakers' lathes.
Hersey Mfg. Co., . . .	Boston, . .	Soap machinery.
Norton Emery Wheel Co.	Worcester, .	Emery wheels.

## REPORT OF BOARD OF

Group 77—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Northampton Emery Wheel Co.	Leeds, . .	Emery wheels.
J. A. W. Seabury Machine Co.	Malden, . .	Laundry machines.

## Group 79.

Hersey Mfg. Co., . .	Boston, . .	Cube sugar machine.
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## DEPARTMENT OF AGRICULTURE.

## Group 1.

J. W. Allen, . . .	Amherst, . .	Corn.
Geo. L. Averill, . .	North Andover, .	Corn.
Wm. L. Bancroft, . .	Chesterfield, .	Corn.
Henry Barlow & Sons, .	Pern, . . .	Wheat.
Edwin Bates, . . .	Lynn, . . .	Corn.
John B. Benton, . .	Barre, . . .	Corn.
Albert Berry, . . .	North Andover, .	Corn.
J. R. & D. F. Bigelow, .	Petersham, . .	Corn and oats.
Charles A. Birnie, . .	Longmeadow, .	Corn.
Wm. L. Bontwell, . .	Leverett, . . .	Corn.
Ralph H. Bradford, .	South Egremont, .	Buckwheat.
C. L. Buell, . . .	Ludlow, . . .	Corn.
Leon M. Busby, . . .	Monterey, . .	Corn.
G. H. Carpenter, . .	South Hadley, .	Grasses.
Oliver Cowles, . . .	Amherst, . . .	Corn.
Sumner Crabtree, . .	Natick, . . .	Corn.
Walter L. Cutting, . .	Pittsfield, . .	Corn, oats, grasses and buckwheat.
Amos Deming, . . .	Savoy, . . .	Corn, oats, barley and grasses.
Geo. H. DeWolf, . . .	Mendon, . . .	Corn.
F. M. Dickinson & Son, .	Belchertown, .	Corn.
J. C. Dillon, . . .	Amherst, . . .	Corn.
Wm. H. Dodge, . . .	Cheshire, . . .	Corn.
Charles W. Fairbanks, .	Claremont, . .	Corn.
E. N. Fisher, . . .	Ludlow, . . .	Corn.
Albert J. Flanders, . .	Chilmark, . .	Corn.
D. Frissell & Sons, . .	Pern, . . .	Wheat, oats, barley and buckwheat.
Homer Frissell, . . .	Pern, . . .	Oats.
John Frissell, . . .	Pern, . . .	Barley.
John Z. Frissell, . . .	Pern, . . .	Oats.
Mrs. M. T. Goddard, . .	Newton, . . .	Corn.
J. F. Gulliver, . . .	Andover, . . .	Corn.
Monroe Hayward, . .	Agawam, . . .	Corn.
Geo. W. Holcomb, . .	Chester, . . .	Oats.
C. A. Judd, . . .	South Hadley, .	Corn.
Frank N. Kellogg, . .	Sheffield, . .	Rye.
G. L. Kent, . . .	Belchertown, .	Corn and buckwheat.
G. S. Kent, . . .	Belchertown, .	Oats and grasses.
S. K. Kindley, . . .	Spencer, . . .	Grass.

NOTE.—The awards in Group 1 in the Department of Agriculture have not as yet been announced.

Group 1—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
H. H. Kingsley, . .	Spencer, . .	Grass.
C. B. Larkin, . . .	Buckland, . .	Corn.
Charles Lawton, . .	Leverett, . .	Corn.
Spencer Leonard, . .	Bridgewater, . .	Corn.
F. W. Lincoln, . . .	Oakham, . . .	Rye.
H. W. Lincoln, . . .	Oakham, . . .	Corn and buckwheat.
Andrew S. Longfellow, .	Groveland, . .	Corn.
Massachusetts Agricultural College.	Amherst, . .	Corn and rye.
Wm. W. McIntosh, . .	Nantucket, . .	Corn and oats.
N. Clark Newton, . .	North Hadley, . .	Corn.
H. W. Nichols, . . .	Sturbridge, . .	Oats, barley and rye.
L. T. Osborne, . . .	Alford, . . .	Corn.
Geo. M. Parker, . . .	New Lenox, . .	Corn and oats.
Jerome Pease, . . .	Wilbraham, . .	Corn and oats.
Martin A. Phelps, . .	Blandford, . .	Corn.
F. L. Plantiff, . . .	Belchertown, . .	Corn.
Preston Pratt, . . .	South Weymouth.	Corn.
Eugene Randall, . . .	Belchertown, . .	Corn.
N. Randall & Son, . .	Belchertown, . .	Corn.
A. A. Randall, . . .	Mendon, . . .	Corn.
Geo. A. Rogers, . . .	North Andover, . .	Corn.
Patrick Ryan, . . .	North Hadley, . .	Corn.
H. G. Sanderson, . . .	Sunderland, . .	Corn.
E. B. Sanford, . . .	Belchertown, . .	Corn and barley.
Asa Smith, . . . .	Chilmark, . . .	Corn.
C. K. Smith, . . . .	Sunderland, . .	Corn.
H. B. Smith & Son, . .	Chesterfield, . .	Corn.
Newton Smith, . . .	South Hadley, . .	Corn.
E. S. Squires, . . . .	Worthington, . .	Oats and buckwheat.
C. E. Stebbins, . . .	South Deerfield.	Wheat, corn, oats, barley and rye.
M. H. Tyler, . . . .	Greenfield, . .	Corn.
Edward Warren, . . .	Spencer, . . .	Corn.
F. R. Williams, . . .	Sunderland, . .	Corn.

## Group 2.

Middleby Oven Co., . .	Boston, . . .	Ovens.
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## Group 3.

Parker Hubbard, . . .	Sunderland, . .	Maple sugar.
The Walter M. Lowney Co.	Boston, . . .	Chocolate bonbons.

## Group 4.

Milford H. Clarke, . .	Sunderland, . .	Onions.
H. C. Conesus, . . .	Hadley, . . .	Potatoes.
W. A. French, . . . .	Petersham, . .	Potatoes.
E. R. Gunn, . . . .	So. Deerfield, . .	Onions.
F. J. Kurney, . . . .	Worcester, . .	Potatoes.
Charles Lawton, . . .	Leverett, . . .	Onions.
C. S. Smith, . . . .	Amherst, . . .	Potatoes.

## Group 5.

NAME.	ADDRESS.	DESCRIPTION.
Alvan Barrus, . . .	Goshen, . . .	Beans.
J. R. & D. F. Bigelow, .	Petersham, .	Beans.
H. L. & I. B. Salmon, .	Richmond, .	Beans.
Curtis Whipple, . . .	Charlemont, .	Beans.

## Group 6.

The E. T. Cowdrey Co.,	Boston, . . .	Devilled ham and soups.
J. H. W. Hucksins & Co.,	Boston, . . .	Sandwich meats and canned soups.
North Packing and Provision Co.	Boston, . . .	Dried beef, hams and bacon, salted meats, tongues, tripe, etc.

## Group 7.

Simpson, McIntire & Co.,	Boston, . . .	Butter in sealed tins.
Upton Mfg. Co., . . .	West Upton, .	Milk aerator.

## Group 8.

Walter Baker & Co., .	Dorchester, .	Chocolate and cocoa.
John Brell, . . .	Hadley, . . .	Leaf tobacco.
Clark Coffee Co., . .	Boston, . . .	Combination of cocoa and coffee.
C. F. Fowler, . . .	Westfield, .	Leaf tobacco.
Cephas Graves, . . .	Sunderland, .	Leaf tobacco.
N. Clark Newton, . .	North Hadley, .	Leaf tobacco.
H. I. Searle, . . .	Northampton, .	Leaf tobacco.
Charles Sliderton, . .	Hadley, . . .	Leaf tobacco.

## Group 9.

Chase Cotton Gin Co., .	Milford, . . .	Cotton gins.
Eagle Cotton Gin Co., .	Bridgewater, .	Cotton gins.
National Cotton Gin and Wool Brrer Co.	Boston, . . .	Cotton gins and wool brrers.

## Group 11.

Cushing Process Co., .	Boston, . . .	Bourbon and rye whiskeys, rum and brandy.
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## Group 16.

Sherman R. Nye, . . .	Chicopee Falls,	Horse rake.
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## Group 17.

Crystal Gelatine Co., .	Boston, . . .	Gelatine.
North Packing and Provision Co.	Boston, . . .	Fertilizer.

## Group 18.

NAME.	ADDRESS.	DESCRIPTION.
North Packing and Provision Co.	Boston, . .	Lard.

## DEPARTMENT OF TRANSPORTATION.

## Group 80.

Acme Railway Appliance Co.	Boston, . .	Electric train-signal apparatus.
Ashton Valve Co., .	Boston, . .	Locomotive safety valves and gauges.
F. W. Bird & Son, .	East Walpole, .	Waterproof fabrics for roofing railway cars.
Burnham & Duggan Railway Appliance Co.	Boston, . .	Switches, chairs, etc.
Burton Stock Car Co., .	Boston, . .	Horse and cattle cars.
Coburn Trolley Track Mfg. Co.	Holyoke, . .	Hangers and fixtures for door cars.
Eastman Freight Car Heater Co.	Boston, . .	Refrigerator, heater and ventilator cars.
Jewett Supply Co., .	Boston, . .	Car body and truck bolsters, anti-friction device, elevated railway.
W. B. Merrill & Co., .	Boston, . .	Metallic packing.
A. O. Norton, . .	Boston, . .	Track and screw jacks.
Old Colony Railroad Co.,	Boston, . .	Passenger locomotive and coach, coal car, locomotive built in 1858, coach built in 1835.
Reinforced Rail Joint Co.	Boston, . .	Rail joints.
Rowell Potter Safety Stop Co.	Boston, . .	Safety stop and block-signal system, intermural railway.

## Group 81.

A. & J. M. Anderson, .	Boston, . .	Electric railway switches, fixtures.
Burnham & Duggan Railway Appliance Co.	Boston, . .	Trolley-wire brackets and insulators.
A. O. Norton, . .	Boston, . .	Jacks for street and electric cars.
Reliable Mfg. Co., . .	Boston, . .	Street railway supplies, heaters, etc.
Robinson Electric Truck and Supply Co.	Boston, . .	Radial system.
Suspension Transportation Co.	Boston, . .	Elevated electric system of transportation.

## Group 83.

Amesbury Carriage Co.,	Amesbury, .	Pleasure carriages.
S. R. Bailey & Co., .	Amesbury, .	Light pleasure vehicles.
Biddle & Smart Co., .	Amesbury, .	Light pleasure vehicles.
Boston & Lockport Block Co.	Boston, . .	Railroad trucks.
Briggs Carriage Co., .	Amesbury, .	Large pleasure wagons, light pleasure vehicles.
Bradshaw Mfg. Co., .	Boston, . .	Bicycles.



Group 83—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
J. T. Clarkson & Co., .	Amesbury, .	Pleasure carriages.
Eben N. Carrier, .	Amesbury, .	Buggy.
Folger & Drummond, .	Amesbury, .	Traps.
N. H. Folger, .	Amesbury, .	Cutnnder.
Hickory Wheel Co., .	Newton, .	Sulkies and bieycles.
Lambert Hollander, .	Amesbury, .	Rockaways.
Miller Bros., .	Amesbury, .	Brake.
Osgood Morrill, .	Amesbury, .	Traps.
Neal & Bolser, .	Amesbury, .	Light pleasure vehicles.
Overman Wheel Co., .	Chicopee Falls, .	Bicycles.
Charles A. Palmer, .	Amesbury, .	Brougham.
A. N. Parry & Co., .	Amesbury, .	Brake and wagons.
Pope Mfg. Co., .	Boston, .	Bicycles and parts.
Wm. Read & Sons, .	Boston, .	Bicycles.
Samuel Rowell & Son, .	Amesbury, .	Traps.
John H. Shields & Co., .	Amesbury, .	Phaeton.
Simonds Rolling Machine Co.	Fitchburg, .	Rolled forged steel specialties.
United States Whip Co.,	Westfield, .	Whips and lashes.
Warwick Cycle Mfg. Co.,	-	Safety bicycles.

## Group 84.

Coburn Trolley Track Mfg. Co.	Holyoke, .	Carrying track for overhead tramway.
Miles Pneumatic Tube Co.	Boston, .	Pneumatic parcel, cash and mail tubes, pneumatic elevators.

## Group 85.

Ashton Valve Co., .	Boston, .	Marine safety valves and gauges.
Cape Ann Anchor Works, .	Gloucester, .	Anchor.
C. E. Duryea, .	Springfield, .	Gasolene launch.
Essex Institute and Peabody Academy of Science.	Salem, .	Drawings of ships, photographs of collections and nautical instruments.
John Meaney, .	Boston, .	Race-boat equipment.
Old Colony Steamboat Co.	Boston, .	Steamer models.
Henry G. Peabody, .	Boston, .	Photographs of United States naval squadron and yachts.
Charles N. Richardson, .	Gloucester, .	Steerers.
Stewart & Binney, .	Boston, .	Sail-boat and steam-yacht models.
Dana Dudley, .	Lynn, .	Pneumatic dynamite gun.

## DEPARTMENT OF FISH AND FISHERIES.

## Group 37.

Board of Trade, .	Gloucester, .	Fishes and other forms of aquatic life illustrated by preserved specimens, casts, drawings, etc.
J. W. Marston & Co., .	Boston, .	Casts of lobsters.
John R. Neal & Co., .	Boston, .	Cast of swordfish, frozen fish and charts of fishing grounds.

## Group 38.

NAME.	ADDRESS.	DESCRIPTION.
American Net and Twine Co.	Boston, . .	Nets, seines and materials, fish traps, pounds, etc.
Board of Trade, . .	Gloucester, .	Reports, statistics and literature showing progress of the Gloucester fisheries, fishing gear, hooks, jigs and drails, nets, seines, rakes and dredges, fish traps, weirs and pounds, fishing stations and out-fits, fish knives, gaffs, etc., illustrations of special fisheries, fishing boats and vessels.
J. W. Marston & Co., .	Boston, . .	Lobster gear and traps, wharf, building and bars for lobster fishing, lobster boat.
John R. Neal & Co., .	Boston, . .	Models of schooners, dory, etc., gear and lines, mackerel jigs, gill nets, Cape Cod fish weirs, mackerel gaff and illustration of special fisheries.

## Group 40.

Edward K. Burnham, .	Gloucester, .	Canned mackerel.
Board of Trade, . .	Gloucester, .	Models and method of handling and curing fish, cured and preserved fish, products of fisheries, appliances for preparing fish products and models of fish markets, wharves, etc.
Gloucester Isinglass and Glue Co.	Gloucester, .	Fish glues, isinglass and fish glue articles.
J. W. Marston & Co., .	Boston, . .	Models of building and appliances for lobster industry and models of lobster market.
Ezra Kelley, . . . .	New Bedford, .	Blackfish oil for watches.
John R. Neal & Co., .	Boston, . .	Models illustrating lobster industry, appliances for fish market.
Wm. F. Nye, . . . .	New Bedford, .	Watch, clock and chronometer oil.

## DEPARTMENT OF FINE ARTS.

## Group 139.

Max Baehman, . . .	Boston, . . .	Sculpture.
Amy A. Bradley, . .	Boston, . . .	"
Jane N. Hammond, .	Boston, . . .	"
H. R. Hyatt, . . . .	Boston, . . .	"
Henry H. Kitson, . .	Boston, . . .	"
Wm. O. Partridge, .	Boston, . . .	"
Katherine Prescott, .	Boston, . . .	"
Theo. Alice Ruggles, .	Boston, . . .	"
F. G. Wesselhoeft, .	Boston, . . .	"
Anne Whitney, . . .	Boston, . . .	"

## Group 140.

NAME.	ADDRESS.	DESCRIPTION.
Thomas Allen, . .	Boston, . .	Oil paintings.
Mary K. Baker, . .	Boston, . .	" "
E. H. Barnard, . .	Boston, . .	" "
Frank W. Benson, . .	Salem, . .	" "
Wallace Bryant, . .	Boston, . .	" "
Caroline Bunker, . .	Boston, . .	" "
I. H. Caliga, . .	Boston, . .	" "
W. W. Churchill, . .	Boston, . .	" "
J. G. Cochrane, . .	Boston, . .	" "
Lucy S. Conant, . .	Boston, . .	" "
Mrs. C. A. Cranch, . .	Boston, . .	" "
Walter L. Dean, . .	Boston, . .	" "
Joseph De Camp, . .	Boston, . .	" "
Arthur W. Dow, . .	Ipswich, . .	" "
D. Jerome Elwell, . .	Boston, . .	" "
John J. Enneking, . .	Boston, . .	" "
Lucia Fairchild, . .	Boston, . .	" "
I. M. Gangengigl, . .	Boston, . .	" "
Abbott Graves, . .	Boston, . .	" "
Lillian Greene, . .	Boston, . .	" "
Joseph H. Greenwood, . .	Worcester, . .	" "
Ellen Day Hale, . .	Boston, . .	" "
Maria Hallowell, . .	West Medford, . .	" "
E. W. D. Hamilton, . .	Boston, . .	" "
J. H. Hatfield, . .	Canton, . .	" "
Belle D. Hodgkins, . .	Salem, . .	" "
Edith M. Howes, . .	Boston, . .	" "
Ernst Ipsen, . .	Boston, . .	" "
Louis Kronberg, . .	Boston, . .	" "
F. M. Lamb, . .	Stoughton, . .	" "
Clara W. Lathrop, . .	Northampton, . .	" "
Laura Lee, . .	Boston, . .	" "
M. L. Macomber, . .	Waverly, . .	" "
Ernest L. Major, . .	Boston, . .	" "
Albert H. Munsell, . .	Boston, . .	" "
Edward Glover Niles, . .	Boston, . .	" "
S. Mary Norton, . .	Boston, . .	" "
Wm. M. Paxton, . .	Boston, . .	" "
S. B. de Peralta, . .	Boston, . .	" "
Lilla C. Perry, . .	Boston, . .	" "
Charles F. Pierce, . .	Boston, . .	" "
Ambrose J. Pritchard, . .	Boston, . .	" "
F. H. Richardson, . .	Boston, . .	" "
Henry Orme Ryder, . .	Manchester, . .	" "
J. M. Stone, . .	Boston, . .	" "
Edmund C. Tarbell, . .	Boston, . .	" "
Stacy Tolman, . .	Boston, . .	" "
F. H. Tompkins, . .	Boston, . .	" "
Ross Turner, . .	Salem, . .	" "
Frederick P. Vinton, . .	Boston, . .	" "
Jacob Wagner, . .	Boston, . .	" "
Sarah W. Whitman, . .	Boston, . .	" "
Charles Herbert Woodbury.	Boston, . .	" "

## Group 141.

Thomas Allen, . .	Boston, . .	Painting in water colors.
Dwight Blaney, . .	Boston, . .	" " " "
Edward C. Cabot, . .	Boston, . .	" " " "

Group 141 — *Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Lucy S. Conant, . .	Boston, . .	Painting in water colors.
Ellen S. Dixey, . .	Boston, . .	" " " "
Hendricks A. Hallett, .	Boston, . .	" " " "
Melburne H. Hardwick,	Boston, . .	" " " "
Arthur Rotch, . .	Boston, . .	" " " "
M. Silsbee, . .	Boston, . .	" " " "
Joseph L. Smith, . .	Boston, . .	" " " "
Alice Stackpole, . .	Boston, . .	" " " "
Fanny W. Tewksbury, .	Boston, . .	" " " "
Ross Turner, . .	Salem, . .	" " " "

## Group 143.

Rominer Lovewell, . .	Chelsea, . .	Engravings, etchings, etc.
J. A. S. Monks, . .	Boston, . .	" " " "
S. A. Schoff, . .	Greenfield, .	" " " "
Charles A. Walker, . .	Boston, . .	" " " "
W. P. Cleaves, . .	Springfield, .	" " " "
W. B. Closson, . .	Lancaster, .	" " " "
William Jay Dana, . .	Brookline, .	" " " "
F. E. Fillebrown, . .	Boston, . .	" " " "
Elbridge Kingsley, . .	Hadley, . .	" " " "
H. F. W. Lyons, . .	Boston, . .	" " " "

## Group 144. — Chalk, Charcoal, Pastel and Pen-and-Ink Drawings.

Anna E. Klumpke, . .	Boston, . .	Drawings.
Adelaide Wadsworth, .	Boston, . .	"
Jacob Wagner, . .	Boston, . .	"
Francis Gilbert Attwood,	Boston, . .	"
Frank O. Small, . .	Boston, . .	"

## DEPARTMENT OF HORTICULTURE.

## Group 21.

Orrin C. Cook, . .	Milford, . .	Hickory nuts.
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## Group 22.

Botanic Gardens, . .	Cambridge, .	Tropical palms.
R. & J. Farquhar, . .	Boston, . .	Bedding plants.
H. H. Hunnewell, . .	Wellesley, .	Palms, etc.
State of Massachusetts, .	—	Flowers and plants.
Rea Bros., . .	Norwood, .	Plants.
W. C. Strong & Co., . .	Waban, . .	Flowers.

## Group 23.

Blair Mfg. Co., . .	Springfield, .	Lawn mowers, sprinklers, etc.
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## DEPARTMENT OF ETHNOLOGY AND ARCHÆOLOGY.

NAME.	ADDRESS.	DESCRIPTION.
Peabody Museum of American Archaeology and Ethnology.	Cambridge, .	- -
H. P. Bowditch, . .	Boston, . .	- -
E. Hitchcock, . .	Amherst, . .	- -
State Board of Health of Massachusetts.	-	- -
M. Anna Wood, . . .	Wellesley, .	- -
C. F. Hedge, Clark University.	Worcester, .	- -
Hugo Münsterberg, Harvard University.	Cambridge, .	- -
Esther O. Putnam, .	Cambridge, .	- -
Milton Bradley Co., .	Springfield, .	- -

## DEPARTMENT OF FORESTRY.

State of Massachusetts,	-	Specimens of native woods.
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## DEPARTMENT OF ELECTRICITY.

## Group 122.

Electrical Forging Co., .	Boston, . .	Converters.
General Electric Co., .	Boston, . .	Magnets, induction coils, converters and transformers.
Monson Electric Welding Co.	Boston, . .	Induction coils and transformers.

## Group 123.

General Electric Co., .	Boston, . .	Instruments of precision, volt meters, ammeters, watt meters, etc.
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## Group 125.

Elektron Mfg. Co., .	Springfield, .	Direct-current dynamos.
General Electric Co., .	Boston, . .	Direct-current dynamos, intermural railroad, battle ship, alternating-current dynamos.
Thomson Electric Welding Co.	Boston, . .	Alternating-current dynamos.

## Group 126.

Electric Forging Co., .	Boston, . .	Cables, wires, rheostats, switches, insulators, fusible cut-outs and safety switches.
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Group 126 — *Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Electrical Heat Alarm Co.	Boston, .	Safety heat appliance.
Elektron Mfg. Co., .	Springfield, .	Cables, wires and electrical appliances.
General Electric Co., .	Boston, .	Rheostats, switches and meters, underground conduits, safety appliances, lightning arresters and cut-offs.
Stanley Electric Mfg. Co.	Pittsfield, .	Safety appliances.
Thomson Electric Welding Co.	Boston, .	Rheostats, switches and safety appliances.
Washburn & Moen Mfg. Co.	Worcester, .	Light, cables and wires.

## Group 127.

Colburn Electric Mfg. Co.	Fitchburg, .	Electric motors.
Elektron Mfg. Co., .	Springfield, .	Direct, constant-current and alternating-current motors.
Electrical Forging Co., .	Boston, .	Motor generator.
General Electric Co., .	Boston, .	Direct, constant and alternating current motors.
Stanley Electric Mfg. Co.	Pittsfield, .	Motors.

## Group 128.

Bemis Car Box Co., .	Springfield, .	Street railway truck.
Elektron Mfg. Co., .	Springfield, .	Electric elevators.
General Electric Co., .	Boston, .	Motors for railway for general application and for novelties.
Lawrence Machine Co.,	Lawrence, .	Centrifugal pump.
Robinson Electric Truck and Supply Co.	Boston, .	Street railway truck.

## Group 129.

Colburn Electric Mfg. Co.	Fitchburg, .	Incandescent system.
Electrical Forging Co., .	Boston, .	Lamps, fixtures and appliances for arc and incandescent systems.
Elektron Mfg. Co., .	Springfield, .	Incandescent lighting and appliances.
General Electric Co., .	Boston, .	Search-lights and arc system, luminous electrical fountains, and incandescent system.
Walworth Mfg. Co., .	Boston, .	Railway and arc-light poles.

## Group 130.

American Electric Heating Co.	Boston, .	Apparatus for warming and heating by electricity, electric ovens and furnaces.
Electric Forging Co., .	Boston, .	Metal-heating generators and apparatus.



## Group 131.

NAME.	ADDRESS.	DESCRIPTION.
Colburn Electric Mfg. Co.	Fitchburg, .	Electrotyping, electro-plating, electro deposition of metals and electrolytic separation processes.
Electrical Forging Co., .	Boston, .	Electrolytic metal separation.
General Electric Co., .	Boston, .	Magnetic separator for separating iron ores.

## Group 132.

Electrical Forging Co., .	Boston, .	Forgings, weldings and apparatus.
Thomson Electric Welding Co.	Boston, .	Forging and welding of metals.

## Group 133.

Electric Heat Alarm Co.,	Boston, .	Thermostat.
Electric Magneto Clock Co.	Boston, .	Electric clocks.
General Electric Co., .	Boston, .	Dynamos for quadruplex telegraphic service.

## Group 134.

American Bell Telephone Co.	Boston, .	Exhibit of history and development of telephony.
Clare L. Sponholz, .	Lowell, .	Telephone register directories.
Washburn & Moen Manufacturing Co.	Worcester, .	Telephone cables and wires.

## Group 135.

General Electric Co., .	Boston, .	Dental drill.
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## Group 136.

Electric Gas Co., .	Boston, .	Ignition of explosives.
Franklin Electric Appliance Co.	Boston, .	Heat-regulator appliances.
Holtzer Cabot Electric Co.	Boston, .	Electric automatic burner.

## Group 137.

General Electric Co., .	Boston, .	Historical models and works.
Thomson Electric Welding Co.	Boston, .	Objects illustrating electrical progress.

## Group 138a.

NAME.	ADDRESS.	DESCRIPTION.
Electric Forging Co., .	Boston, .	Construction tools and apparatus, application of metals in electrical construction.
General Electric Co., .	Boston, .	Patent exhibits, apparatus for electrical construction and repair, water wheel coupled to dynamo, carbon and its application, direct-coupled engine dynamos.
Graton & Knight Mfg. Co.,	Worcester, .	Belting.
Jewett Supply Co., .	Boston, .	Automatic friction device for car bodies.
Walworth Mfg. Co., .	Boston, .	Railway and arc-light poles.

NOTE. — As the General Electric Company made its exhibits through the New York office, awards were granted to them as of that State. Their name therefore does not appear in the list of Massachusetts exhibitors who received that distinction.

## DEPARTMENT OF LIBERAL ARTS.

## Group 147.

A. W. Cram, . . . .	Haverhill, .	Cleaning out for drains.
Massachusetts State Board of Health.	—	Analytical work in food adulterations, water, etc.

## Group 148.

J. C. Ayer Co., . . .	Lowell, . . .	Pharmaceutical preparations.
Doliber-Goodale Co., .	Boston, . . .	Food for infants.
Sherman R. Nye, . . .	Chicopee Falls,	Finger truss.
Edward A. Tracy, . . .	South Boston, .	Surgical splints and jackets.

## Group 149.

Amherst College, . . .	Amherst, . . .	Photographs, plans, books, etc.
Clark University, . . .	Worcester, . . .	University work.
Deaf School, . . . .	Northampton, .	School work.
Feeble-Minded School, .	Barre, . . . .	School work.
Harvard University, . .	Cambridge, . .	Charts, photographs, publications, etc.
Massachusetts Institute of Technology, . . .	Boston, . . . .	Books, theses, apparatus, shop-work, etc.
Massachusetts Normal Art School, . . . .	Boston, . . . .	Students' work.
Massachusetts State Normal Schools.	—	Collective exhibit from Normal Schools in Bridgewater, Framingham, Salem, Westfield and Worcester.
Milton Bradley Co., . .	Springfield, . .	Kindergarten's manual training, scientific and drawing materials.

Group 149—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Mount Holyoke College,	South Hadley,	History, photographs, students work, etc.
Museum of Fine Arts, .	Boston, . .	Students' work.
Prang Educational Co.,	Boston, . .	Models, text-books, drawing materials, etc.
Smith College, . . .	Northampton, .	Pictures and pamphlets.
State of Massachusetts,	—	Educational exhibit.
Tufts College, . . .	Somerville, . .	Photographs, charts, etc.
Wellesley College, . .	Wellesley, . .	Photographs, charts, etc.
Williams College, . .	Williamstown, .	Photographs, books, instruments, etc.
Christian Brothers, . .	Chicopee, . . .	School work.
Christian Brothers, . .	Waltham, . . .	School work.
Sisters of Providence, .	Chelsea, . . .	School work.
Sisters of Notre Dame, .	Canton, . . .	School work.
Sisters of Notre Dame, .	Malden, . . .	School work.
Sisters of Notre Dame, .	Boston, . . .	School work.

## Group 150.

Estes & Lanriat, . . .	Boston, . . .	Books.
Ginn & Co., . . . . .	Boston, . . .	School books.
D. C. Heath & Co., . .	Boston, . . .	School books, charts, maps, etc.
Houghton, Mifflin & Co.,	Boston, . . .	Books and magazines.
Interstate Publishing Co.	Boston, . . .	School books, charts, etc.
Leach, Shewell & Sanborn.	Boston, . . .	School books.
G. & C. Merriam Co., .	Springfield, .	Webster's Dictionaries.
New England Publishing Co.	Boston, . . .	Teachers' books and periodicals.
Park Commissioners, . .	Boston, . . .	Maps and photographs of park system.
Alfred A. Post, . . . .	Boston, . . .	Volapuk literature.
L. Prang & Co., . . . .	Boston, . . .	Chromo-lithographic art prints.
Salem Press Publishing and Printing Co.	Salem, . . . .	Books, charts, engravings.
Silver, Burdett & Co., .	Boston, . . .	School books, charts, maps, etc.
Norman W. Hearn, . . .	Middleborough,	Samoa manuscripts.
G. H. Wilson, . . . . .	Boston, . . .	Musical publications.

## Group 151.

Blair Camera Co., . . .	Boston, . . .	Photographic apparatus.
Boston Cash Register Co.,	Northampton, .	Cash registers.
Buff & Berger, . . . .	Boston, . . .	Surveyors' and engineers' instruments.

## Group 152.

Wm. E. Wall, . . . . .	Somerville, . .	Graining.
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## Group 153.

United States Mailing Case Co.	Boston, . . .	Mailing case for liquids.
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## Group 154.

NAME.	ADDRESS.	DESCRIPTION.
Lamson Consolidated Store Service Co.	Boston, . .	Cash and parcel carriers, mailing cases, etc.
Lamson Store Equipment Co.	Boston, . .	Registering measuring machines
Standard Autograph Time Recorder.	Boston, . .	Time recorder.

## Group 157.

American Peace Society,	Boston, . .	Books, treatises, diagrams, etc.
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## Group 158.

Chickering & Sons, . .	Boston, . .	Pianos.
Consolidated Manufacturing Co.	Boston, . .	Pianos.
Oliver Ditson Co., . .	Boston, . .	Sheet music and music books.
Emerson Piano Co., . .	Boston, . .	Pianos.
Everett Piano Co., . .	Boston, . .	Pianos.
Hallett & Davis Piano Manufacturing Co.	Boston, . .	Pianos.
John C. Haynes & Co., .	Boston, . .	Guitars, banjos, mandolins, zithers and violins.
Ivers & Pond Piano Co.,	Boston, . .	Pianos.
Mason & Hamlin Organ and Piano Co.	Boston, . .	Pianos and organs.
Mason & Risch, . . . .	Worcester, .	Reed organs.
Henry F. Miller & Sons Piano Co.	Boston, . .	Pianos.
Phonoharp Company, . .	Boston, . .	Phonoharps and zithers.
Vose & Sons Piano Co.,	Boston, . .	Pianos.

## BUREAU OF CHARITIES AND CORRECTION.

## Division A.

Boston Lunatic Hospital,	Boston, . .	Architectural plans, photographs, literature.
McLean Hospital, . .	Somerville, .	Models, plans, photographs, statistics and literature of hospital photographs, statistics and literature of training school for nurses to the insane.

## Division B.

Boston City Hospital, .	Boston, . .	Architectural plans, photographs, literature, statistics, models of appliances of hospital and training school for nurses.
Seth P. II. Hale, . . . .	Williamsville, .	Apparatus for moving invalids.

Division B—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Massachusetts Emergency and Hygiene Association.	Boston, . .	Maps, photographs, appliances, literature.
New England Hospital for Women and Children.	Boston, . .	Photographs, plans, statistics, literature.
Sharon Sanitarium, .	Sharon, . .	Plans and photographs.

## Division C.

Aid for Destitute Mothers and Infants.	Boston, . .	Statistics and reports.
Children's Aid Society, .	Boston, . .	Photographs, statistics, library, etc.
Hampden County Children's Aid Association.	Springfield, .	Photographs, reports.
Industrial School for Girls.	Boston, . .	Reports.
Lynan School for Boys,	Westborough, .	Photographs and specimens of school work.
Massachusetts Infant Asylum.	Boston, . .	Appliances, statistics and photographs.
Massachusetts Society for the Prevention of Cruelty to Children.	Boston, . .	Reports and record blanks.
Massachusetts State Board of Lunacy and Charity.	Boston, . .	Photographs, appliances and statistics of Department of Out-door Poor.
Massachusetts State Primary School.	Palmer, . .	Photographs of buildings, statistics, etc.
South End Industrial School.	Roxbury, . .	Photographs, descriptive charts and specimens of school work.
State Industrial School for Girls.	Laicester, . .	Photographs, statistics, etc.
Trustees of the State Primary and Reform Schools of Massachusetts.	Boston, . .	Bound reports.

## Division D.

Associated Charities, .	Boston, . .	Literature and record blanks.
Associated Charities, .	Fall River, .	Literature.
Associated Charities, .	Newtonville, .	Literature.
Boston Provident Association.	Boston, . .	Literature.
City Mission, . . . .	Lawrence, . .	Literature.
Industrial Aid Society, .	Boston, . .	Literature and record blanks.
Library Bureau, . . .	Boston, . .	Card-case for records of charitable societies.
Department of In-door Poor.	Boston, . .	Statistics and photographs.
State of Massachusetts, .	—	Model of hospital pavilion of the State Almshouse at Tewksbury.
North End Mission, . .	Boston, . .	Literature, photographs and statistics.
Overseers of the Poor, .	Boston, . .	Literature, record blanks and statistics.

Division D—*Concluded.*

NAME.	ADDRESS.	DESCRIPTION.
Overseers of the Poor, .	Brookline, .	Literature, record blanks and statistics.
Overseers of the Poor, .	Somerville, .	Literature, record blanks and statistics.
Overseers of the Poor, .	Springfield, .	Literature, record blanks and statistics.
Society of St. Vincent de Paul.	Boston, .	Literature, record blanks and statistics.
Union Relief Association,	Springfield, .	Literature, record blanks and statistics.

## Division E.

Massachusetts Reformatory.	Concord, .	Drawings, statistics, products and literature.
Reformatory Prison for Women.	Framingham, .	Drawings, statistics, products and literature.

## Division F.

Home Savings Society, .	Boston, .	Statistics and record blanks.
Massachusetts Board of Charities and Correction.	-	Scrap book.
Massachusetts Board of Lunacy and Charity.	-	Reports, photographs, forms, etc.
State of Massachusetts, .	-	Maps, statistics and literature.
Pioneer Co-operative Bank.	Boston, .	Literature and statistics.
Workingmen's Loan Association.	Boston, .	Literature and statistics.



## APPENDIX E

## FINANCIAL STATEMENT.

Appropriation by Legislature, . . . . .	\$175,000 00
State building, cost of construction, . . . . .	\$46,550 41
Office expenses, Board of Managers, . . . . .	8,846 00
Salary of Executive Commissioner, 2 years and 6 months at \$5,000, . . . . .	12,500 00
Salary of Executive Commissioner, 8 months at \$2,250, . . . . .	1,500 00
Travelling expenses, . . . . .	7,212 30
State building, cost of maintenance, . . . . .	11,602 79
Entertainments, "Massachusetts day" and reception to Foreign, National and State Commissioners, etc., . . . . .	5,263 41
Cost of Agricultural Exhibit, . . . . .	6,117 46
" Mineral Exhibit, . . . . .	2,639 85
" Board of Health Exhibit, . . . . .	4,778 16
" District Police Exhibit, . . . . .	500 75
" Charities and Correction Ex- hibit, . . . . .	9,483 69
" Horticultural Exhibit, . . . . .	891 11
" Fine Arts Exhibit, . . . . .	5,365 83
" Historical Exhibit, . . . . .	1,052 59
" Educational Exhibit, . . . . .	11,491 47
Contribution to Rumford Kitchen, . . . . .	224 85
Preparation of report (in part), . . . . .	448 80
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	136,469 47
Balance unused and turned back into State treasury, . . . . .	\$38,530 53

NOTE.—To the above balance of \$38,530.53 should be added the sum of \$1,263.80, the same having been received by the Board of Managers from various sources and by them covered into the State treasury. There thus remains an available balance of \$39,794.33 from which to pay the expense of printing and binding the report of the Board of Managers, for which the Executive Council has authorized an appropriation of \$3,000.













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